

SYMPOSIUM AGENDA



36th

International Conference on Thermoelectrics

2017 ICT

July 31 - Aug 3

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Sponsors & Supporters	i
Committees & Event Coordination Team.....	1
Pasadena Convention Center Map & Conference Key	2
General Information (Admittance, Fees, Oral/Poster Guidelines).....	3
Evening Networking Functions	4
Exhibit Map & Exhibitors	5
Week-At-A-Glance.....	13
Detailed Agenda	15
Poster Session	55
Index.....	91

Detailed Agenda

Sunday, 30 July 2017

Early Registration Check-in at the Westin Pasadena Hotel	15
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Monday, 31 July 2017

Thermoelectric Materials I	
SnSe and Related Compounds	15
PbTe and Related Materials	17
n-type Zintl	21
Zintl	23
Thermoelectric Materials II	
Bi ₂ Te ₃ and Related Materials.....	16
Clathrates	18
Copper Chalcogenides	22
Silicides	24
Thermoelectric Systems and Devices	
Optimization	16
Flexible Devices and Processing.....	18
Device Design and Fabrication.....	22
Fabrication	24
Welcome Reception & Poster Session.....	25

Tuesday, 1 August 2017

Voyager Program Keynote	27
Panel on Partnerships in Thermoelectrics.....	27
ITS Young Investigator and OATs Awards Presentations.....	27
NASA Meeting on Next Generation Radioisotope Thermoelectric Generator (RTG).....	28
Thermoelectric Materials I, cont.	
New Materials	29



Novel Chalcogenides and Pnictides	31
Thermoelectric Materials II, cont.	
Half Heuslers	30
Skutterudites.....	32
Thermoelectric Systems and Devices, cont.	
Cooling.....	30
Device Development and Validation.....	32

Wednesday, 2 August 2017

Thermoelectric Materials I, cont.	
New Materials Discovery	35
First Principles Calculations	37
Phonon Scattering.....	41
Novel Materials.....	43
Thermoelectric Materials II, cont.	
Mechanical Properties	36
Micro and Nanostructure	38
Inorganic/Organic Structures.....	42
Novel TE Materials and Processes	44
Thermoelectric Systems and Devices, cont.	
Modules	36
Interfaces/Metallization	38
Device Development and Validation II.....	42
Thermionics.....	44
Award's Banquet.....	45

Thursday, 3 August 2017

Thermoelectric Materials I, cont.	
Oxides.....	45
Phonon Transport.....	49
Composites.....	51
Thermoelectric Materials II, cont.	
Thin Films.....	46
Characterization Methods	50
Characterization Methods II.....	52
Thermoelectric Systems and Devices, cont.	
Solar Thermoelectric and Various Applications.....	46
Applications	50
Novel Device Concepts.....	52
Universal Studio Hollywood Excursion	53

Friday, 4 August 2017

Jet Propulsion Laboratory Tour.....	53
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Organizing Committee

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Dr. Fivos Drymiotis, Jet Propulsion Laboratory/California Institute of Technology

Dr. Jean-Pierre Fleurial, Jet Propulsion Laboratory/California Institute of Technology

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Prof. Austin Minnich, California Institute of Technology

Prof. G. Jeffrey Snyder, Northwestern University

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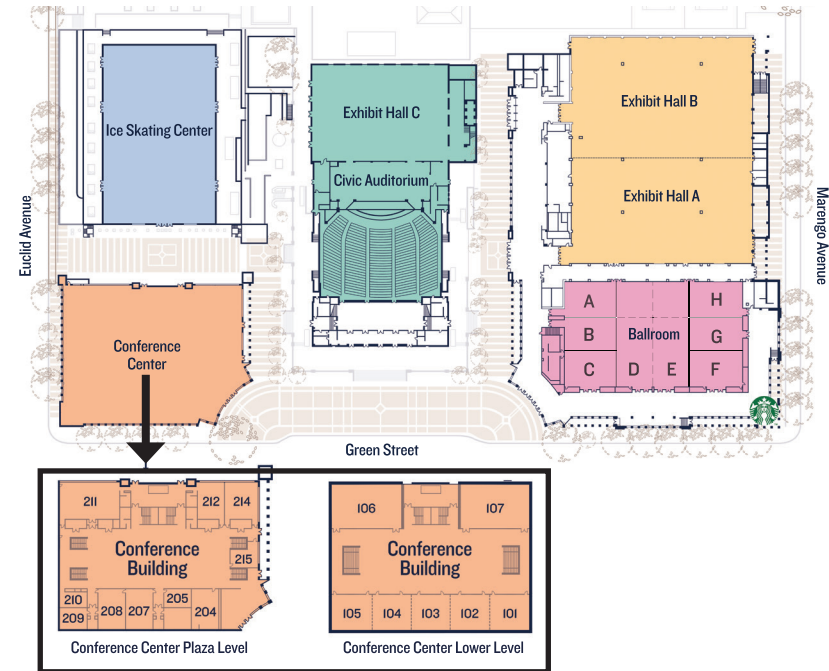
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Mr. David Plassman, Consultant



Convention Center Map

Pasadena Convention Center
300 East Green Street, Pasadena, CA 91101



Map Key

- Sunday Registration: Westin Pasadena Hotel Lobby, 191 N. Los Robles Ave., Pasadena, CA 91101
- Monday - Thursday Registration: Ballroom C Foyer
- Exhibits & Posters: Ballroom D-H
- Technical Sessions: Ballrooms A, B, and C
- Attendee Breaks: When Exhibit Hall is Open - Ballrooms D-H
When Exhibit Hall is Closed - Ballroom D - H Foyer
- Speaker Meetings: Ballrooms A, B, and C
- Monday Poster Session & Receptions: Ballroom D-H
- Awards Dinner: Exhibit Hall C
- City Outing: Universal Studios Hollywood
- NASA Session on Next Generation Radioisotope Thermoelectric Generator Discussion: Conference Center, Room 211

General Information

Registration Desk Open (Ballroom Foyer)

Sunday: 1600 - 2000

(Registration for Sunday only is in the Westin Pasadean Hotel Lobby, 191 N. Los Robles Ave., Pasadena, CA)

Monday: 0730 - 1800

Tuesday: 0800 - 1800

Wednesday: 0800 - 1730

Thursday: 0800 - 1530

General Admittance

Participants and accompanying persons are required to wear the official conference name badge at all conference functions – no admittance without your name badge! If you lose your badge, report it immediately to the registration desk.

Registration Fees

Full Attendee Registration: \$950 USD

Student Registration: \$550 USD

Exhibit Area Only Registration \$550 USD

Accompanying Person Registration (18 years and older only) : \$400 USD

Full Attendee and Student Registration includes access to all technical sessions, the poster session and exhibit hall, membership for one year in the International Thermoelectric Society, the Welcome Reception, the Awards Dinner, transportation and access to the Universal Studios Hollywood Excursion and reception, and break refreshments.

Exhibit Area Only Registration includes access to the ICT exhibit hall and all functions that take place within it, such as the reception, poster session, and exhibit show. **This pass does not give you access to any of the technical sessions, the Award's Banquet, or the Universal Studios Hollywood Excursion.** If you are interested in purchasing tickets for Universal or upgrading to a Full Access Registration, see the registration desk.

The Accompanying Person's Registration includes an LA Area & Hollywood Tour, Monday Evening Reception with Drink Ticket, Wednesday Awards Dinner with Drink Ticket, Thursday Universal Studios Outing Pass with Transportation, Reception, and Open Bar.

Presentation Guidelines

All oral presentations will take place at the Pasadena Convention Center in Ballrooms A, B, and C.

Guidelines for Oral Presentation

1. Presentation Rooms: Ballrooms A - C. Please be sure you know when and where you present.
2. A Windows-ready (non-Mac) computer, LCD projector, speaker timer, and a basic sound system will be provided in all presentation rooms. You must use the ICT conference computer - **plugging your own computer into the system is not an option.**
3. An optional speaker meeting is held at 0815 on the morning of your presentation in your presentation room. This is a time to get acquainted with the audio visual equipment and to do a quick final check on your briefing.
4. Duration of talks unless otherwise noted in the agenda
Oral Presentations: 15 minutes (includes 3 minutes for discussion)
Invited Presentations: 30 minutes (includes 5 minutes for discussion)



Guidelines for Poster Presentation

1. Poster Session Location: Ballroom D - H
2. Please set-up your poster between 1330 - 1700 on Monday, 31 July. Posters may not be set-up any later than 1700, or your space will be forfeited.
3. Posters may be taken down between 1100 - 1330 on Thursday, 3 August. Posters may not be taken down prior to 1100 on Thursday.
4. All posters will have an identification number and the boards will be labeled with a poster name card so you can find where to post your material. You will have a 45 inch by 45 inch space (on self-standing cork board) to post your materials. You are responsible for printing your poster, hand-carrying it or shipping it to yourself, and setting it up on-site.
5. During the Monday night Poster Session, authors are asked to be present in the exhibit & poster hall in order to answer questions that interested viewers may have. We encourage you to post the hours you will be by your poster at other times so people may come and speak with you then.

Proceedings

The 2017 ICT proceedings will be published as a special issue of the Journal of Electronic Materials (JEM).

Official Language

The conference language is English.

Networking & Extracurricular Functions

Monday Welcome Reception & Poster Session

1800 – 2000, Ballroom D-H

This event kicks off the exhibit and poster session. Join colleagues to start the dialogue!

Wednesday Award's Banquet

1830 – 2030, Exhibit Hall C

Join your colleagues for an evening of good food, awards, and recognition. This dinner is included in the attendee registration and accompanying person's registration at no additional cost.

Thursday Universal Studios Hollywood Excursion

1600 – 2200, Universal Studios Hollywood

This event is included in the attendee registration and accompanying person's registration at no additional cost. Please note that the conference ticket allows you into the theme park beginning at 1600 if you are driving on your own. We will offer bussing to Universal starting at 1630. The reception will run from 1830 - 2030. Bussing back to the conference hotels (Westin and Hilton) will be offered at 2045 and 2200. Additional tickets are available for purchase for \$110.

Friday Jet Propulsion Laboratory

0900 – 1230, Jet Propulsion Laboratory

Registration for this tour is now closed. The event is free, but limited to 50 people, 18 years and older who pre-registered for this tour. Photo identification is required (government-issued ID for U.S. citizens; green cards for legal U.S. permanent residents; and passports for foreign nationals). Transportation is on your own. If you are not sure if you are signed up for this tour, please see the registration desk.

Exhibit Show & Poster Hours

Exhibit & Poster Set-Up:

Monday: 1130 – 1700 Exhibitor Set-Up
1330 – 1700 Poster Set-Up

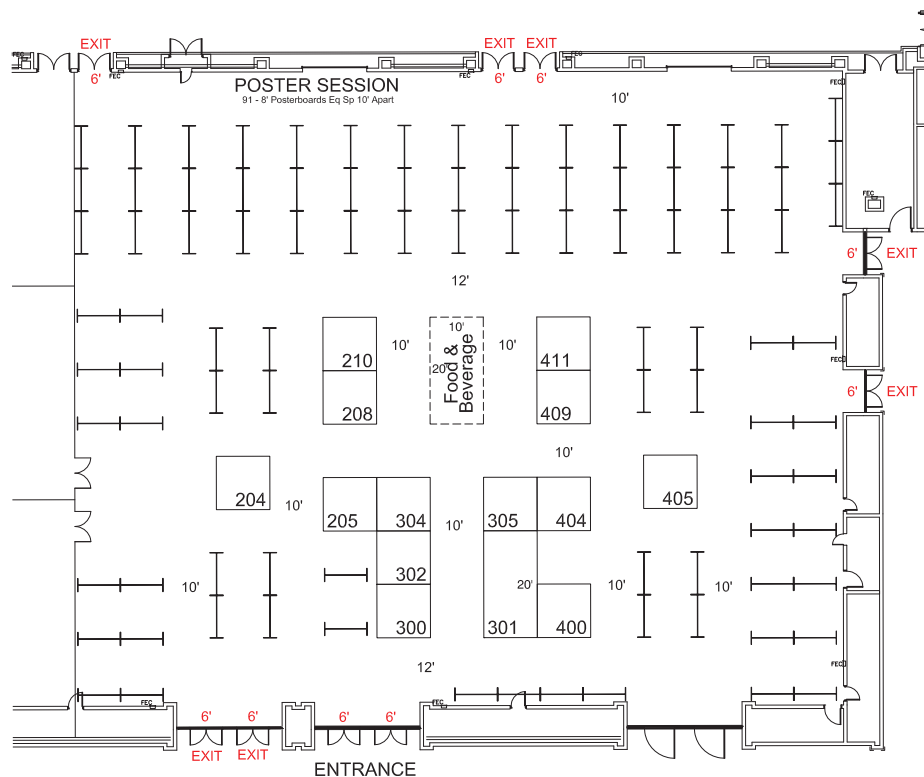
Show Hours:

Monday: 1800 – 2000
Tuesday: 1000 – 1230 & 1330 – 1800
Wednesday: 1030 – 1230 & 1330 – 1730
Thursday: 0900 – 1100

Exhibit & Poster Dismantle:

Thursday: 1100 – 1330

Exhibit Show & Poster Floor Plan



Exhibitors

Exhibitors

California Nanotechnologies - 404

<http://www.calnanocorp.com/>

California Nanotechnologies is an industry leader in Spark Plasma Sintering, an advanced consolidation technique for every type of material, and Cryogenic Milling, used for particle reduction, as well as grain refinement. As the exclusive technical and training partner of FUJI-SPS, inventor of SPS technology, we offer R&D and production toll services, training and maintenance of SPS machines.

Dr. Fritsch Powder Shaping Technologies Germany - 208

<http://www.fastsintering.com/>

Dr. Fritsch manufactures FAST/SPS sinter presses, cold presses, dosing machines and automation devices for research and production of thermoelectric materials and other powdermetallurgical applications. Dr. Fritsch produces more FAST/SPS presses than anybody else and thus makes SPS sintering economic and affordable for everyone! Please visit our booth or contact Mr. Huber by email for more information: jens.huber@dr-fritsch.de; Internet: www.fastsintering.com.

Linseis, Inc. - 210

<http://www.linseis.com/>

The Linseis Thermal Analysis business unit has emerged as a global leader since its inception in 1957. Linseis manufacturers and sells multiple devices in the field of thermal analysis and thermal physical property measurements. Our US business unit is located in Robbinsville, NJ. This division handles sales, service and support for all equipment manufactured by Linseis. The thermal analysis division produces a complete range of thermal analytical instruments for research and quality control including but not limited to the Laser Flash, Seebeck, and Hall effect instruments. Our recent developments include the revolutionary Thin Film Analyzer for measuring Multiple Thermo electric properties on thin film materials, and the LZT meter for measuring Seebeck effect, resistivity, conductivity and diffusivity of bulk materials. Linseis will be exhibiting at booth 210. Please visit our website at www.linseis.com.

MISJ - 304

<http://mi-seojin.com/>

Mi-Seojin Inc. (MISJ) delivers one-stop cooling solutions by combining research, analysis, design, and cost-effective procurement on the basis of accumulated know-how on Research & Development and Manufacturing. We are always looking into creating new cutting-edge products for our clients, and staying on top of the market as manufacturers and suppliers.

MSE Supplies LLC - 205

<http://www.msesupplies.com/>

MSE Supplies (msesupplies.com) is a U.S.-based leading supplier of high quality materials and equipment for advanced materials research and production. We provide both standard and custom-made products to meet customer specific requirements. MSE Supplies is the exclusive North America distributor of Wuhan Joule Yacht Science & Technology Co., Ltd., offering a wide range of Physical Properties Measurement Systems, such as the Thermoelectric Parameters Analyzers for bulk samples and thin films.

MTI Corporation - 204

<http://www.mtixtl.com/>

MTI Corporation has been providing a total solution for materials research labs since 1995. MTI supplies ceramic, crystal, metallic substrates from A-Z and Nanopowder. We also provide laboratory R&D equipment including alloy melting, casting, annealing, sectioning, polishing, mixing machines, high temperature muffle and tube furnaces, pressing machines, film coaters, high vacuum systems, high-pressure furnaces, RTP furnaces, hydrogen furnaces, as well as compact XRD/XRF for Metallographic analysis and equipment for Materials Genome Initiative (MGI) High Throughput & Productivity.

NASA Radioisotope Power Systems Program - 301

<https://rps.nasa.gov/home.cfm>

Building upon the 50-year legacy of using radioisotope thermoelectric generators to electrically power spacecraft, NASA's Radioisotope Power Systems (RPS) Program, in conjunction with the Department of Energy and industry, is investing in advanced thermoelectric technology to increase power system efficiency and longevity. Come and learn about the active missions using RPS, currently available power systems and enhancements being considered to support future mission concepts.

NETZSCH Instruments North America, LLC - 300

<http://www.netzsch.com/ta>

The Analyzing & Testing business unit of the NETZSCH Group develops and manufactures a complete high-precision instrument line for thermal analysis and thermophysical properties measurement, as well as offering world class commercial testing services in our laboratories. Our instrumentation is employed for research and quality control in the polymer sector, the chemical industry, the areas of inorganic and building materials, and environmental analysis. Instruments for controlling – such as for in-situ cure monitoring – complete our product line.

Quantum Design, Inc. - 409

<http://www.qdusa.com/>

Quantum Design manufactures automated material characterization systems providing temperatures from 0.05 K to 1000 K and fields up to 16 tesla. Our Physical Property Measurement Systems (PPMS[®], DynaCool, and VersaLab) provide a wide range of measurements, including: thermal transport (thermal conductivity, Seebeck coefficient, thermopower), heat capacity, electrical transport, and magnetometry.

Sentec - 305

<http://www.sentecgroup.com/zh/>

Sentec Electro Ceramic & Device Group offers various substrate and IC packaging solutions. Process Technologies were transferred from Panasonic since year 1999. Main Product: High Accuracy Multi-Layer LTCC Substrate (X,Y ±0.05%); Non-Shrinkage Ceramic Interposer; Cu Slug in Ceramic Substrate (>300W/m²k); Cavity Package (QFN, Custom Lead Frame); Direct Plating Technology on Al₂O₃ & AlN Substrate; Hermetic Ceramic Package (10⁻⁸); Custom Thin/Thick Film Process Service; and Turnkey IC Packaging Service.



Sheetak, Inc. - 400

<http://www.sheetak.com/>

Sheetak offers high-performance eco-friendly solid-state cooling engines for refrigerators and freezers, and breakthrough technologies for battery-free industrial IoT. Sheetak's flagship line of CENTUM thermoelectric coolers offers the best COP and temperature differentials commercially available. CENTUM engines can be utilized for wine coolers, beverage coolers, freezers, and optoelectronic data communications.

Teledyne - 302

<http://www.teledyne.com/>

Teledyne Energy Systems is a leading provider of custom power systems for demanding land, sea and space applications (including the Mars Curiosity rover thermoelectric power system). The Teledyne technology portfolio includes thermoelectric materials and systems, fuel cells, electrolysis, Stirling converters and batteries. Teledyne works to be the bridge between emerging energy conversion technology and niche market products for applications around the world.

ThermoAura, Inc. - 411

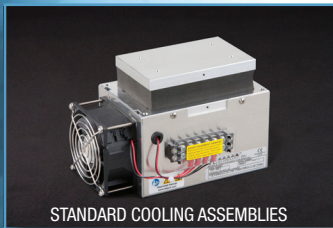
<http://www.thermoaura.com/>

ThermoAura, Inc. is a nanotechnology and clean energy company headquartered in Colonie, New York. We design, produce, and market high-performance nano-enabled thermoelectric materials that outperform current state-of-the-art thermoelectrics.

ULVAC Technologies, Inc. - 405

<http://www.ulvac.com/>

ULVAC is an international corporation that designs, manufactures, and markets equipment and materials for industrial applications of vacuum technology. The ULVAC name is derived from the company's conceptual foundation - "The ULtimate in VACuum Technology." Ulvac products include equipment for all vacuum applications, from complete coating systems to vacuum components.



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CEA LITEN

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CEA is the French Alternative Energies and Atomic Energy Commission (Commissariat à l'énergie atomique et aux énergies alternatives).

CEA's LITEN institute has a staff of 1000 people. Its Laboratory for Thermoelectrics is dedicated to studies in the field of thermoelectric materials, components and systems. More than 20 people are working on all the value chain: from ab-initio calculation at atomic scale to the industrial transfer of complete thermoelectric systems passing through material synthesis, devices assembly and testing. The laboratory has a strong expertise on silicon-based (silicides) and half-Heusler materials including nanostructured materials. The laboratory has launched a spin-off company in 2012, HotBlock OnBoard.

A composite image featuring a rocket launch on the left and a Mars rover on the right. In the center, a large, white, multi-faceted MMRTG is shown in a cutaway view, revealing its internal components. The background is a dark space with stars.

MMRTG

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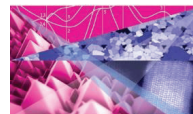
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Sunday, 7/30/17			
PM	Early Registration		

Monday, 7/31/17			
	Track 1	Track 2	Track 3
AM	Thermoelectric Materials I: SnSe and Related Compounds	Thermoelectric Materials II: Bi ₂ Te ₃ and Related Materials	Thermoelectric Systems and Devices: Optimization
AM	Break		
AM	Thermoelectric Materials I: PbTe and Related Materials	Thermoelectric Materials II: Clathrates	Thermoelectric Systems and Devices: Flexible Devices and Processing
PM	Lunch Break		
PM	Thermoelectric Materials I: n-type Zintl	Thermoelectric Materials II: Copper Chalcogenides	Thermoelectric Systems and Devices: Device Design and Fabrication
PM	Break		
PM	Thermoelectric Materials I: Zintl	Thermoelectric Materials II: Silicides	Thermoelectric Systems and Devices: Fabrication
PM	Poster Session & Welcome Reception in Exhibit Hall		

Tuesday, 8/1/17			
	Track 1	Track 2	Track 3
AM	Plenary Session		
AM	Break		
AM	Award Talks		
PM	Lunch Break		
PM	Thermoelectric Materials I: New Materials	Thermoelectric Materials II: Half Heuslers	Thermoelectric Systems and Devices: Cooling
PM	Break		
PM	Thermoelectric Materials I: Novel Chalcogenides and Pnictides	Thermoelectric Materials II: Skutterudites	Thermoelectric Systems and Devices: Device Development and Validation



Wednesday, 8/2/17			
	Track 1	Track 2	Track 3
AM	Thermoelectric Materials I: New Materials Discovery	Thermoelectric Materials II: Mechanical Properties	Thermoelectric Systems and Devices: Modules
AM	Break		
AM	Thermoelectric Materials I: First Principles Calculations	Thermoelectric Materials II: Micro and Nanostructure	Thermoelectric Systems and Devices: Interfaces/Metallization
PM	Lunch Break		
PM	Thermoelectric Materials I: Phonon Scattering	Thermoelectric Materials II: Inorganic/Organic Structures	Thermoelectric Systems and Devices: Device Development and Validation II
PM	Break		
PM	Thermoelectric Materials I: Novel Materials	Thermoelectric Materials II: Novel TE Materials and Processes	Thermoelectric Systems and Devices: Thermionics
PM	Awards Banquet		

Thursday, 8/3/17			
	Track 1	Track 2	Track 3
AM	Thermoelectric Materials I: Oxides	Thermoelectric Materials II: Thin Films	Thermoelectric Systems and Devices: Solar Thermoelectric and Various Applications
AM	Break		
AM	Thermoelectric Materials I: Phonon Transport	Thermoelectric Materials II: Characterization Methods	Thermoelectric Systems and Devices: Applications
PM	Lunch Break		
PM	Thermoelectric Materials I: Composites	Thermoelectric Materials II: Characterization Methods II	Thermoelectric Systems and Devices: Novel Device Concepts
PM	Break		
PM	Universal Studios Hollywood Theme Park Outing & Reception		

Friday, 8/4/17			
	Track 1	Track 2	Track 3
AM	JPL Tour		

Lead Authors Are Underlined

Sunday, July 30, 2017	
1600 - 2000	Early Registration Check-In (<i>Westin Pasadena Lobby, 191 N. Los Robles Ave, Pasadena, CA</i>)
Monday, July 31, 2017	
0800 - 1800	Registration Open (<i>Ballroom Foyer</i>)
0815 - 0845	Speaker Meeting for Monday Presenters (<i>Your Presentation Room</i>)
1000 - 1530	Registered ICT Accompanying Person Tour
1130 - 1700	Exhibitor Set-Up (<i>Ballroom D-H</i>)
1230 - 1400	Lunch Break (<i>On Your Own</i>)
1330 - 1700	Poster Set-Up (<i>Ballroom D-H</i>)
1800 - 2000	Poster Session & Welcome Reception (<i>Ballroom D-H</i>)
	Track 1 (Ballroom A)
	Thermoelectric Materials I: SnSe and Related Compounds Session Chair: Dr. Franck Gascoin, CRISMAT Laboratory
0900 - 0930	A1 INVITED Engineering Defects in SnSe Single Crystal Prof. Sunglae Cho, University of Ulsan Co-Authors: <u>Quang Van Nguyen</u> , Duong Anh Tuan, Duong Van Thiet, Nguyen Thi Minh Hai, Tran Thi Toan, Ganbat Duvjir, Trinh Thi Ly, Jungdae Kim, Cheng Chang, Lidong Zhao
0930 - 0945	A2 High Thermoelectric Performance and Extremely Low Lattice Thermal Conductivity in K- and Ag-Doped (SnSe)_{1-x}(SnS)_x Fabricated by Hot Press Sintering Mr. Chan-Chieh Lin, Kyung Hee University Co-Authors: <u>Jong-Soo Rhyee</u> , R. Lydia
0945 - 1000	A3 Strategy to Improve Thermoelectric SnTe as an Eco-Friendly Alternative for PbTe <u>Dr. Wen Li</u> , Tongji University Co-Authors: Linglang Zheng, Yanzhong Pei



Accompanying Person Package

The 2017 ICT Accompanying Person Registration includes an LA Area Bus Tour*, Monday Evening Reception with Drink Ticket, Wednesday Awards Dinner with Drink Ticket, Thursday Universal Studios Outing Pass with Transportation, Reception, and Open Bar. This registration is open to adults 18 years and older. If you are interested in purchasing a package for your guest, see the registration desk.

*The LA Area bus tour is a 5.5 hour Starline tour where you will see: The Hollywood Sign, Walk of Fame, Chinese Theater, Dolby Theater (home to the Oscars), Sunset Strip, Beverly Hills, Rodeo Drive, Downtown LA, Griffith Observatory, and time for lunch at the Farmers Market (please bring money for lunch). Please note that final tour schedule may differ slightly.

Track 2 (Ballroom B)	Track 3 (Ballroom C)
Thermoelectric Materials II: Bi₂Te₃ and Related Materials Session Chair: Prof. Jihui Yang, University of Washington	Thermoelectric Systems and Devices: Optimization Session Chair: Dr. Fivos Drymiotis, Jet Propulsion Laboratory/California Institute of Technology
B1 INVITED Mildred S. Dresselhaus Retrospective <u>Prof. Joseph Heremans</u> , The Ohio State University	C1 INVITED ZT Optimization: An Application Focus on Materials <u>Dr. Richard Tuley</u> , European Thermodynamics Ltd. Co-Author: Kevin Simpson
B2 Nano Engineering Strategies to Boost the Thermoelectric Performance of Bi₂S₃ Materials <u>Dr. Weishu Liu</u> , Southern University of Science and Technology Co-Authors: Chuanfei Guo, Zihang Liu, Jiehe Sui, Zhifeng Ren	C2 Advanced Thermoelectric Optimization Methods for Approaching Practical Energy Conversion Devices <u>Prof. Yaniv Gelbstein</u> , Ben-Gurion University of the Negev
B3 Band Convergence and Bond Softening in Te-Free (Bi,Sb)₂Se₃ <u>Dr. Shanyu Wang</u> , University of Washington Co-Authors: Yongxing Sun, Jiong Yang, Bo Duan, Lihua Wu, Wenqing Zhang, Jihui Yang	C3 Methodology of How to Reconcile Material Tuning Strategy with Device Reliability in Thermoelectric Power Generators <u>Dr. Hee Seok Kim</u> , University of South Alabama Co-Author: Zhifeng Ren

	Track 1 (Ballroom A)
1000 - 1015	A4 Thermoelectric Properties on Polycrystalline SnSe with Compositing Two-Dimensional Material Dr. <u>Yuexing Chen</u> , Southern University of Science and Technology
1015 - 1030	A5 Grain Boundary Scattering Effects on Hole Mobilities in P-type Polycrystalline SnSe Ms. <u>Si Wang</u> , University of Michigan
1030 - 1100	Break (Ballroom D-H Foyer)
	Thermoelectric Materials I: PbTe and Related Materials Session Chair: Prof. Joseph Heremans, The Ohio State University
1100 - 1130	A6 INVITED P- and n-type Thermoelectrical Materials Based on PbTe Prof. <u>Yuri Grin</u> , Max-Planck-Institut für Chemische Physik fester Stoffe Co-Authors: Xin-Ke Wang, Igor Veremchuk, Matej Bobnar, Ulrich Burkhardt, Jing-Tai Zhao
1130 - 1145	A7 Electrical Transport Properties of PbTe from First Principles Mr. Fanchen Meng, Clemson University Co-Authors: <u>Wu Li</u> , Jinlong Ma, Jian He



Track 2 (Ballroom B)	Track 3 (Ballroom C)
B4 Macroscale Thermoelectric Materials with Low Dimensional Nanoscale Features Dr. <u>Teruyuki Ikeda</u> , Ibaraki University Co-Authors: Masayuki Murata, Takashi Komine, Hideyuki Kiue, Yasuhiro Hasegawa	C4 The Calculation of Device Figure of Merit ZT of a Single Material from its Materials Properties Prof. <u>G. Jeffrey Snyder</u> , Northwestern University
B5 High Thermoelectric Performance of Bi_{0.5}Sb_{1.5}Te₃ with Excess Te Dr. <u>Ge Nie</u> , Virginia Tech Co-Authors: Wenjie Li, Han-Byul Kang, Jue Wang, Scott Huxtable, Mohan Sanghadasa, Shashank Priya	C5 New Formulation and Interpretation of the Thomson Effect Prof. <u>Dr. Yuri Gurevich</u> , CINVESTAV-I.P.N. Co-Authors: Igor Lashkevich, Enrique Velazquez, Oleg Titov
Break (Ballroom D-H Foyer)	Break (Ballroom D-H Foyer)
Thermoelectric Materials II: Clathrates Session Chair: Dr. Kirill Kovnir, University of California, Davis	Thermoelectric Systems and Devices: Flexible Devices and Processing Session Chair: Prof. Daryoosh Vashaee, North Carolina State University
B6 INVITED Lattice Thermal Conductivity of Thermoelectric Clathrates at High Temperature Dr. <u>Matt Beekman</u> , California Polytechnic State University	C6 INVITED Membrane-Supported Thermoelectric Devices Dr. <u>Steve Savoy</u> , Nanohmics, Inc. Co-Authors: Giri Joshi, Josh Ruedin, Sebastian Liska, Leslie Wood, Mike McAleer
B7 Tuning of Chemical Composition and Thermoelectric Properties for Si-Based Clathrate System by Multi-Element Substitution Including Gold Dr. <u>Hiroaki Anno</u> , Tokyo University of Science, Yamaguchi Co-Authors: Risa Maejima, Kazuya Okamoto	C7 Development of CMOS-Compatible Materials for Thermoelectric and Sensor Applications in Semiconductor Industry Dr. <u>Maik Wagner-Reetz</u> , Fraunhofer Institute for Photonic Microsystems Co-Authors: Jesús Calvo, Charan Krishna Nichenametla, Kati Kühnel, Tim Göhler, Benjamin Uhlig



	Track 1 (Ballroom A)
1145 - 1200	<p>A8 Enhanced Thermoelectric Properties of P-Type PbSe Alloyed with MgSe <u>Dr. James Hodges</u>, Northwestern University</p> <p>Co-Authors: Shiqiang Hao, Xiaomi Zhang, Vinayak Dravid, Christopher Wolverton, Mercuri G. Kanatzidis</p>
1200 - 1215	<p>A9 Examining Lead Vacancies in Lead Chalcogenides <u>Mr. Christian Zeuthen</u>, Aarhus University</p> <p>Co-Authors: Peter Skjøtt Thorup, Bo Brummerstedt Iversen</p>
1215 - 1230	<p>A10 Vibrational Entropy Effects on the PbTe-SrTe Phase Diagram: Implications for Nanostructured Thermoelectrics <u>Ms. Xia Hua</u>, Northwestern University</p> <p>Co-Authors: Shiqiang Hao, Christopher Wolverton</p>
1230 - 1400	Lunch Break (On Your Own)

Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B8 Ba₈Cu₁₄Ge₆P₂₆: Closing the Gap between Tetrel-Based and Tetrel-Free Clathrates <u>Dr. Jian Wang</u>, University of California, Davis</p> <p>Co-Authors: Juli-Anna Dolyniuk, Peter Klavins, Oleg I. Lebedev, Kirill Kovnir</p>	<p>C8 Flexible Thermoelectric Generators Compatible with Commercial Module Fabrication Processes <u>Dr. Jie Liu</u>, North Carolina State University</p> <p>Co-Authors: Kamal Bebawy, William Campbell, Bobby Compton, Zachary Coutant, Rose Freeman, Michael Hall, Haywood Hunter, Abhishek Malhotra, Mehmet Ozturk, Elena Veety, Daryoosh Vashae</p>
<p>B9 Lattice Dynamics in a Type-II Clathrate Based on Sn <u>Dr. Katharina Fritsch</u>, Helmholtz Zentrum Berlin für Materialien und Energie</p> <p>Co-Authors: Kaya Wei, Ahmet Alatas, Ayman Said, George Nolas, Klaus Habicht</p>	<p>C9 Flexible Thermoelectric Energy Harvesters Using Bulk Thermoelectric Legs and Low-Resistivity, Stretchable Liquid Metal Interconnects <u>Ms. Yasaman Sargolzaeiava</u>, North Carolina State University</p> <p>Co-Authors: Taylor Neumann, Francisco Suarez, Viswanath Padmanabhan Ramesh, Dishit P. Parekh, Daryoosh Vashae, Michael Dickey, Mehmet C. Ozturk</p>
<p>B10 Synthesis, Thermal Stability and Thermoelectric Properties of Type IX Clathrates Compounds <u>Mr. Adrien Moll</u>, Université de Montpellier/ICGM</p> <p>Co-Authors: M. Beaudhuin, R. Viennois, V. Legrand, A. Haidoux, D. Ravot, N. Fréty, R. Debord, S. Botti, V. Giordano, M. Marquez, S. Merabia, S. Pailhès</p>	<p>C10 Flexible Thermoelectric System Based on Inorganic Bulk Materials Mr. Hwanjoo Park, Yonsei University</p> <p>Co-Authors: <u>Woochul Kim</u>, Donggyu Kim, Yoomin Eom</p>
Lunch Break (On Your Own)	Lunch Break (On Your Own)

Thermoelectric Materials I: n-type Zintl Session Chair: Dr. Eric Toberer, Colorado School of Mines	
1400 - 1430	<p>A11 INVITED Defect Chemistry and Texture Control in n-type Mg₃(Sb,Bi)₂ <u>Dr. Hiromasa Tamaki</u>, Panasonic Corporation</p> <p>Co-Authors: Hiroki K. Sato, Tsutomu Kanno</p>
1430 - 1445	<p>A12 Novel High Performance p- & n-Type Zintl Thermoelectrics <u>Dr. Jing Shuai</u>, University of Houston</p> <p>Co-Authors: Jun Mao, Shaowei Song, Qing Zhu, Jifeng Sun, Yumei Wang, Ran He, Jiawei Zhou, Gang Chen, David J. Singh, Zhifeng Ren</p>
1445 - 1500	<p>A13 Manipulation of Ionized Impurity Scattering for Achieving High Thermoelectric Performance in n-type Mg₃Sb₂-Based Materials <u>Mr. Jun Mao</u>, University of Houston</p> <p>Co-Authors: Jing Shuai, Shaowei Song, Zihang Liu, Jifeng Sun, David Singh, Gang Chen, Zhifeng Ren</p>



Thermoelectric Materials II: Copper Chalcogenides Session Chair: Prof. Ctirad Uher, University of Michigan	Thermoelectric Systems and Devices: Device Design and Fabrication Session Chair: Dr. Tim Holgate, Teledyne Energy Systems, Inc.
<p>B11 INVITED Partial Insolubility Boosts the Thermoelectric Figure of Merit of Cu₂Se Nanocomposites <u>Dr. Pierre Ferdinand Poudeu</u>, University of Michigan</p> <p>Co-Authors: Alan Olvera, Alex Page, Ctirad Uher</p>	<p>C11 INVITED Development of High Efficiency Segmented Thermoelectric Couples for Space Applications <u>Dr. Fivos Drymiotis</u>, Jet Propulsion Laboratory/California Institute of Technology</p> <p>Co-Authors: Jean-Pierre Fleurial, Sabah Bux, Samad Firdosy, Kurt Star, Ike Chi, Billy Li, Sevan Chanakian, Kathleen Lee, Kevin Yu, Obed Villalpando, Kevin Smith, David Uhl, Chen-Kuo Huang, Vilupanur Ravi, Dean A. Cheikh, Jong-Ah Paik, Zi-Kui Liu, Jorge Paz Soldan Palma, Yi Wang, XiaoYu Chong</p>
<p>B12 Assessing the Thermal Conductivity of Cu_{2-x}Se Alloys Undergoing a Phase Transition Via the Simultaneous Measurement of Thermoelectric Parameters by a Harman Based Setup <u>Dr. Dimitri Vasilevskiy</u>, Ecole Polytechnique de Montreal</p> <p>Co-Authors: M.K. Keshavarz, J.-M. Simard, R.A. Masut, S. Turenne, G. Jeffrey Snyder</p>	<p>C12 Skutterudite-Based Thermoelectric Module and Pack <u>Dr. Dong Sik Kim</u>, LG Chem R&D Campus Daejeon</p> <p>Co-Authors: Cheol-Hee Park, Hyunwoo Choi, Jae Ki Lee</p>
<p>B13 Thermoelectric Performance of SnSe/Cu₂Se Composites Ms. Danqi He, Wuhan University of Technology</p> <p>Co-Authors: <u>Zhi Peng</u>, Wenyu Zhao, Cuncheng Li, Shifang Ma, Danqi He, Ping Wei, Wanting Zhu, Xiaolei Nie, Qingjie Zhang</p>	<p>C13 Advanced Skutterudite-Based Unicouples for a Proposed Enhanced Multi-Mission Radioisotope Thermoelectric Generator (eMMRTG) <u>Dr. Ike Chi</u>, Jet Propulsion Laboratory/California Institute of Technology</p>



A14-A17

	Track 1 (Ballroom A)
1500 - 1515	A14 Mechanism of Obtaining n-type Mg₃Sb₂ Based Compounds with Exceptionally High zT Mr. <u>Saneyuki Ohno</u> , California Institute of Technology Co-Authors: Kazuki Imasato, Shashwat Anand, Hiromasa Tamaki, Stephen Kang, Hiroki K. Sato, Tsutomu Kanno, G. Jeffrey Snyder
1515 - 1530	A15 Realization of n-type Transport in Complex Zintl Compounds; Defect Structure and Thermoelectric Potential of KGaSb₄ Mr. <u>Brenden Ortiz</u> , Colorado School of Mines Co-Authors: Prashun Gorai, Vladan Stevanovic, Eric Toberer
1530 - 1600	Break (Ballroom D-H Foyer)
	Thermoelectric Materials I: Zintls Session Chair: Prof. Yuri Grin, Max-Planck-Institut für Chemische Physik fester Stoffe
1600 - 1630	A16 INVITED Structure, Bonding, and Defect Chemistry of AM₂X₂ Zintl Phases Dr. <u>Alexandra Zevalkink</u> , Michigan State University
1630 - 1645	A17 Thermoelectric Properties of AMg₂X₂, AZn₂Sb₂ (A = Ca, Sr, Ba; X = Sb, Bi), and Ba₂ZnX₂ (X = Sb, Bi) Zintl Compounds Dr. <u>Jifeng Sun</u> , University of Missouri Co-Author: David J. Singh

B14-B17

C14-C17

Track 2 (Ballroom B)	Track 3 (Ballroom C)
B14 Enhanced Stability and zT in Cu₂Se by Li Doping Mr. <u>Stephen Kang</u> , California Institute of Technology Co-Authors: Jan-Hendrik Pohls, Umut Aydemir, Pengfei Qiu, Constantinos C. Stoumpos, Mary Anne White, Xun Shi, Lidong Chen, Mercouri G. Kanatzidis, G Jeffrey Snyder	C14 Issues in Thermoelectric-to-Electrode Joining: An Investigation on Novel Bonding Approach for Skutterudite-Based Thermoelectric Modules Ms. <u>Katarzyna Placha</u> , Politecnico di Torino Co-Authors: Milena Salvo, Valentina Casalegno, Richard Tuley, Kevin Simpson
B15 Thermoelectric Enhancement in Cu₂Se with Substitution of Small Amount of Nano Ag₂Se Dr. <u>Sedat Ballikaya</u> , University of Istanbul Co-Authors: Mehmet Han Izgi, Hasan Tiryaki, Murat Sertkol, Yildirhan Oner, Ilhan Koacaarslan, Alex Page, Yuanfeng Liu, Pierre Ferdinand Poudeu, Ctirad Uher	C15 Fabrication of Thermoelectric Module Consisting of Rare Earth Filled Skutterudite Compounds Ms. <u>Wakana Yamakawa</u> , Osaka University Co-Authors: Yoko Matsumura, Ryoji Funahashi, Shigeru Katsuyama
Break (Ballroom D-H Foyer)	Break (Ballroom D-H Foyer)
Thermoelectric Materials II: Silicides Session Chair: Prof. Hubert Scherrer, Université de Lorraine	Thermoelectric Systems and Devices: Fabrication Session Chair: Prof. Yaniv Gelbstein, Ben-Gurion University of the Negev
B16 INVITED Recent Progress in p-type Thermoelectric Magnesium Silicide Based Solid Solutions Dr. <u>Johannes de Boor</u> , German Aerospace Center Co-Authors: Udara Saparamadu, Zhifeng Ren, Hasbuna Kamila, Eckhard Müller, Titas Dasgupta	C16 INVITED Selective Laser Melting of Thermoelectric Materials Dr. <u>Saniya LeBlanc</u> , The George Washington University Co-Authors: <u>Haidong Zhang</u> , Ahmed El Desouky, Shanyu Wang, Michael Carter, Nicholas Batista, Joseph Crandall, Jihui Yang, Saniya LeBlanc
B17 Mechanical Alloying of Optimized Mg₂Si_{0.4}Sn_{0.6} Solid Solutions: Phase Evolution and Influence of Compaction Parameters Mr. <u>Aryan Sankhla</u> , German Aerospace Center (DLR) Co-Authors: Akash Patil, Hasbuna Kamila, M. Yasseri, Nader Farahi, Eckhard Müller, Johannes de Boor	C17 Non-Equilibrium Fabrication and Characterization of n-type Bi₂Te_{2.7}Se_{0.3} Thermoelectric Material by Rapid Laser Melting and Solidification Mr. <u>Xinfeng Tang</u> , Wuhan University of Technology Co-Author: <u>Yu Mao</u>

	Track 1 (Ballroom A)
1645 - 1700	A18 Thermoelectric Properties of New As-Based Compounds $Ba_{1-x}K_xZn_2As_2$ Dr. Kunihiro Kihou, National Institute for Advanced Industrial Science and Technology Co-Authors: Hirotaka Nishiate, Haruno Kunioka, Atsushi Yamamoto, Chul-Ho Lee
1700 - 1715	A19 Large Seebeck and Low Thermal Conductivity in $Yb_{2-x}Eu_xCdSb_2$ Prof. Susan Kauzlarich, University of California, Davis Co-Authors: Joya Cooley, Pichit Promkhan, Shruba Ganghopadhyay, Matthew Han, Davide Donadio, Warren Pickett, Brenden Ortiz, Eric Toberer
1715 - 1730	A20 Thermoelectric Properties of Correlated Actinide Materials Dr. Krzysztof Gofryk, Idaho National Laboratory Co-Authors: J-C. Griveau, P. S. Riseborough, T. Durakiewicz
1730 - 1745	A21 Influence of Chemical Composition and Structural Transformation on the Thermoelectric Properties of Zintl Phases Prof. Tae-Soo You, Chungbuk National University
1745 - 1800	A22 Thermoelectric Zintl Compounds with Na Atoms Disordered in Tunnel Frameworks Dr. Takahiro Yamada, IMRAM Tohoku University & JST-PRESTO Co-Authors: Masahiro Kanno, Takuji Ikeda, Hideaki Nagai, Hisanori Yamane
1800 - 2000	Poster Session & Welcome Reception in Exhibit Hall (Ballroom D-H)



Track 2 (Ballroom B)	Track 3 (Ballroom C)
B18 Top-Down Fabrication of Silicon Nanostructures for Thermoelectric Applications Prof. Giovanni Pennelli, University of Pisa Co-Authors: Elisabetta Dimaggio, Massimo Macucci	C18 Rapid Fabrication and Thermoelectric Performance of SnTe via Non-Equilibrium Laser 3D Printing Mr. Yonggao Yan, Wuhan University of Technology Co-Author: Tianle Chen
B19 Silicide Thermoelectric Materials Evaluation for Automotive Application Manufacturing and Test Under Representative Conditions Dr. Christelle Navone, CEA Co-Authors: T. Baffie, L. Aixala, J. Leforestier, V. Monnet, A. Servantie, C. De Vault, M. Simonin, P. Boisselle, K. Azzouz	C19 Semi-Automated Fabrication of Thermoelectric High-Temperature Modules Dr. Jan König, Fraunhofer Institute for Physical Measurement Techniques IPM Co-Authors: U. Vetter, M. Vergez, E. Geczi, M. Briem, K. Tarantik, M. Kluge, K. Bartholomé
B20 Enhanced Thermoelectric Performance of Higher Manganese Silicides by Incorporating a Small Amount of MnTe Dr. Zhiliang Li, Tsinghua University Co-Authors: Jing-Feng Li, Jin-Feng Dong, Shinsuke Hirono	C20 Formation of Favorable Intermetallic Compound to Improve Contact Resistance in Screen-Printed Thermoelectric Thick Films Mr. Yongjun Kim, Korea Advanced Institute of Science and Technology Co-Author: Byung Jin Cho
B21 Structure and Thermoelectric Properties of Higher Manganese Silicides via Rapid Solidification Process Mr. Hyun Jun Rim, Yonsei University Co-Authors: Hwijong Lee, Gwansik Kim, Kyu Hyoung Lee, Wooyoung Lee	C21 Materials and Manufacturing Methods for Roll-to-Roll Printed Organic TEGs: Why ZT is Not the Most Important Factor Mr. Silas Aslan, Otego Co-authors: André Gall, Matthias Hecht, Frederick Lessmann
B22 Origin of High Seebeck Coefficient of Oxidation-Resistant Cr-Doped $Mn_3Si_4Al_2$ Prof. Masato Yoshiya, Osaka University Co-Authors: Tristan Barbier, Susumu Fujii, Ryoji Funahashi	C22 Additive Printing and Photonic Sintering of Flexible Thermoelectric Devices using Colloidal Nanocrystals Prof. Yanliang Zhang, Boise State University Co-Authors: Tony Varghese, Roozbeh Danaei, Joey Richardson, Courtney Hollar, Nick Kempf, Rahul Panat
Poster Session & Welcome Reception in Exhibit Hall (Ballroom D-H)	Poster Session & Welcome Reception in Exhibit Hall (Ballroom D-H)



Tuesday, August 1, 2017	
0800 - 1800	Registration Open (<i>Ballroom Foyer</i>)
0815 - 0845	Speaker Meeting for Tuesday Presenters (<i>Your Presentation Room</i>)
1000 - 1230	Exhibits and Poster Session Open (<i>Ballroom D-H</i>)
1230 - 1400	Lunch Break (<i>On Your Own</i>)
1330- 1530	NASA Meeting on Next Generation Radioisotope Thermoelectric Generator (RTG) (<i>Conference Center, Room 211</i>)
1330 - 1800	Exhibits and Poster Session Open (<i>Ballroom D-H</i>)
	Plenary Session (Ballroom A - C) Session Chair: Dr. Sabah Bux, Jet Propulsion Laboratory/California Institute of Technology
0900 - 1000	A23 Keynote Presentation: The Voyager Journey to Interstellar Space Dr. Edward C. Stone, Project Scientist for the Voyager Program
1000 - 1030	Break in Exhibit Hall (<i>Ballroom D-H</i>)
1030 - 1130	A24 Panel on Partnerships in Thermoelectrics: Government, Academia and Industry Moderator: Dr. Jean-Pierre Fleurial, Jet Propulsion Laboratory/California Institute of Technology Dr. Uttam Ghoshal, Sheetak, Inc.; Mr. John Hamley, NASA; Dr. Stephen Johnson, Idaho National Laboratory; Dr. Robert Sievers, Teledyne Energy System, Inc.
	Award Talks Session Chair: Prof. Jihui Yang, University of Washington
1130 - 1200	A25a 2017 Young Investigator Award Integrating Band Engineering with Lowing Thermal Conductivity for Promising Thermoelectric Materials Dr. Lidong Zhao, Beihang University
1200 - 1230	A25b 2017 Outstanding Achievement in Thermoelectrics Award Retrospective of My More Than 45 Years of Solid-State Research Prof. Ctirad Uher, University of Michigan
1230 - 1400	Lunch Break (<i>On Your Own</i>)

NASA Meeting On Next Generation Radioisotope Thermoelectric Generator

**1330-1530, Conference Center, Room 211,
Open to All Attendees**

**Session Chair: Dr. Jean-Pierre Fleurial, Jet Propulsion
Laboratory/California Institute of Technology**

Description: NASA's RPS Program, in collaboration with DOE, recently completed a study of potential next-generation Radioisotope Thermoelectric Generator (RTG) needs, focusing on advancing the capabilities of thermoelectric-based RPS-powered mission concepts. The objective of this study was to determine the characteristics of a next-generation RTG that would best fulfill the future directions of NASA's Planetary Science Division (PSD). This study was limited to systems that convert heat to electricity using thermoelectric couples. This session will provide background of existing and past RTG systems, the outcome of the study and the plan being implemented by the RPS Program, which is focused on the maturation of the thermoelectric (TE) technology required for the a next-generation RTG. The session is the first interaction with the TE community to solicit initial input for the path forward, the available thermoelectric capabilities, and those under development that could be relevant to this effort.

Congratulations to Our 2017 ICT Student Grant Award Recipients

- Miguel Araiz, Public University of Navarre
- Anil Bohra, Bhabha Atomic Research Centre
- Sevan Chanakian, Michigan State University
- Woongjin Choi, Chungbuk National University
- Siqi Lin, Tongji University
- Mofasser Mallick, Indian Institute of Technology Bombay
- Hideyasu Ouchi, The University of Tokyo
- Bryan Owens-Baird, University of California, Davis
- Christopher Perez, University of California, Davis
- Manting Qiu, Queen Mary, University of London
- Zongqing Ren, University of California, Irvine
- Thomas Salez, CEA
- Yixuan Shi, University of Waterloo

Track 1 (Ballroom A)	
	Thermoelectric Materials I: New Materials Session Chair: Prof. Susan Kauzlarich, University of California, Davis
1400 - 1430	A26 INVITED Layered Tetrel-Pnictides: A Promising Class of the van der Waals Thermoelectrics <u>Dr. Kirill Kovnir</u> , University of California, Davis
1430 - 1445	A27 Thermoelectric Properties of $Tl_4Ag_{22}Te_{15}$ <u>Ms. Yixuan Shi</u> , University of Waterloo Co-Author: Holger Kleinke
1445 - 1500	A28 Enhanced Thermoelectric Performance in p-type $Mg_{3-x}Ag_xSb_2$ Zintl Compounds by Tuning Carrier Density <u>Ms. Lirong Song</u> , Aarhus University Co-Authors: Jiawei Zhang, Bo Brummerstedt Iversen
1500 - 1515	A29 High Thermoelectric Performance of a Novel Phosphide Compound $Ag_6Ge_{10}P_{12}$ <u>Ms. Xingchen Shen</u> , Chongqing University



Track 2 (Ballroom B)	Track 3 (Ballroom C)
Thermoelectric Materials II: Half Heuslers Session Chair: Dr. Gerda Rogl, Vienna University of Technology	Thermoelectric Systems and Devices: Cooling Session Chair: Dr. Jan König, Fraunhofer-Institute for Physical Measurement
B26 INVITED {Ti,Zr}NiSn-Based High ZT Spinodal Thermoelectrics <u>Prof. Peter Rogl</u> , Vienna University of Technology Co-Authors: P. Sauerschnig, M. Gürth, A. Grytsiv, G. Rogl, E. Bauer, J. Vrestal, V. Romaka, K. Yubuta	C26 INVITED Simulation and Investigation of Thermoelectric Cooler used in Localized Automobile Air Conditioning System <u>Mr. Qiushi Wan</u> , Wuhan University of Technology Co-Authors: Yadong Deng, Chuqi Su, Yiping Wang, Xun Liu
B27 Direct Observation of Inherent Atomic-Scale Defect Disorders Responsible for High-Performance TiNiSn Based half-Heusler Thermoelectric Alloys <u>Prof. Sung Wng Kim</u> , Sungkyunkwan University Co-Authors: <u>Ki Sung Kim</u> , Kyu Hyoung Lee	C27 Optimal Integration of Cascade Thermoelectric Cooler into Electronic Housing: Experimental Approach <u>Dr. Volodymyr Semeniuk</u> , Thermion Company Co-Author: D. Protsenko
B28 Alloying Induced Thermoelectric Performance Enhancement $zT \sim 1.0$ in (Hf,Zr)CoSb Solid Solution <u>Mr. Yintu Liu</u> , Zhejiang University Co-Authors: Xinbing Zhao, Tiejun Zhu	C28 Peltier Supercooling with Isosceles Current Pulses: A Response Surface Perspective <u>Mr. Alfred Piggott</u> , Applied Thermoelectric Solutions, LLC Co-Author: Jeffrey S. Allen
B29 Using the 18-Electron Rule To Understand the Nominal 19-Electron Half-Heusler NbCoSb with Nb Vacancies <u>Mr. Shashwat Anand</u> , Northwestern University Co-Authors: Wolfgang G. Zeier, Lihong Huang, Ran He, Hao Zhang, Zhifeng Ren, Christopher Wolverton, G. Jeffrey Snyder	C29 The Characteristics of the Vehicle Cabin Auxiliary Cooling Module Located in the External Air Intake beside the Windshield <u>Dr. Gangfeng Tan</u> , Wuhan University of Technology Co-Author: <u>Yongbing Xu</u>



	Track 1 (Ballroom A)
1515 - 1530	<p>A30 Winner of the Goldsmid Award Designing Layered Thermoelectric Materials Through Orbital Engineering and Carrier Pocket Engineering <u>Mr. Jiawei Zhang</u>, Aarhus University</p> <p>Co-Authors: Lirong Song, Georg K.H. Madsen, Steffen H. Pedersen, Hao Yin, Bo Brummerstedt Iversen</p>
1530 - 1545	A30 Cont.
1545 - 1600	Break in Exhibit Hall (Ballroom D-H)
	<p>Thermoelectric Materials I: Novel Chalcogenides and Pnictides Session Chair: Dr. Matt Beekman, California Polytechnic State University</p>
1600 - 1615	<p>A31 INVITED Phonon Scattering and Propagation Considerations for Thermoelectrics <u>Prof. Yanzhong Pei</u>, Tongji University</p>
1615 - 1630	
1630 - 1645	<p>A32 Resonant Levels and Thermoelectric Performance in Indium-Doped GeTe <u>Dr. Lihua Wu</u>, Shanghai University</p>

Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B30 Understanding of High Power Factors in Half-Heusler System from First Principles Simulations <u>Mr. Jiawei Zhou</u>, Massachusetts Institute of Technology</p> <p>Co-Authors: Te-Huan Liu, Jun Mao, Ran He, Bolin Liao, David J. Singh, Zhifeng Ren, Gang Chen</p>	<p>C30 Integration and Performance Evaluation of Thermoelectric HVAC Unit in an Electrical Vehicle <u>Dr. Shengqiang Bai</u>, Shanghai Institute of Ceramics, Chinese Academy of Sciences</p> <p>Co-Authors: Junqiang Song, Ting Wu, Qihao Zhang, Lidong Chen</p>
Break in Exhibit Hall (Ballroom D-H)	Break in Exhibit Hall (Ballroom D-H)
<p>Thermoelectric Materials II: Skutterudites Session Chair: Prof. Peter Rogl, Universitaet Wien</p>	<p>Thermoelectric Systems and Devices: Device Development and Validation Session Chair: Dr. Saniya LeBlanc, The George Washington University</p>
<p>B31a Thermoelectric Performance of Single-Filling N-type Skutterudite by Iron Substitution <u>Dr. Wenjie Li</u>, Virginia Tech</p> <p>Co-Authors: Jue Wang, Han-Byul Kang, Scott Huxtable, Bed Poudel, Shashank Priya</p>	<p>C31 INVITED Modeling and Analysis of Segmented Thermoelectric Generator Performance Considering Parasitic Losses <u>Mr. Heonjoong Lee</u>, Virginia Polytechnic Institute and State University</p> <p>Co-Authors: Jeff Sharp, David Stokes, Matthew Pearson, Shashank Priya</p>
<p>B31b Microstructure and Thermoelectric Properties of Indium-Doped Cobalt Antimonide (CoSb₃) Skutterudites obtained by Self-Propagating High-Temperature Synthesis <u>Dr. Mirosław Kruszewski</u>, Warsaw University of Technology</p> <p>Co-Authors: Lukasz Ciupinski, Rafal Zybala, Marcin Chmielewski</p>	
<p>B32 Local Structure and Dynamics of In and Ga Dopants in Co₄Sb₁₂-Based Skutterudites Ms. Yanyun Hu, University of Toronto</p> <p>Co-Authors: <u>Young-June Kim</u>, James R. Salvador, Ning Chen</p>	<p>C32 Presentation to be Announced</p>



	Track 1 (Ballroom A)
1645 - 1700	A33 Thermoelectric Properties of Ge/Sn Bearing Tetrahedrites <u>Dr. Koichiro Suekuni</u> , Kyushu University Co-Authors: Yasufumi Kosaka, Katsuaki Hashikuni, Yohan Bouyrie, Michihiro Ohta, Toshiro Takabatake
1700 - 1715	A34 Strong Reduction of Thermal Conductivity and Enhanced Thermoelectric Properties in CoSb_{1-x}Se_x Paracostibite <u>Dr. Radoslaw Chmielowski</u> , IMRA Europe S.A.S. Co-Authors: S. Bhattacharya, S. Jacob, D. Péré, A. Jacob, K. Moriya, B. Delatouche, P. Roussel, G. K. H. Madse, G. Dennler
1715 - 1730	A35 Optimization of Thermoelectric Properties of Polycrystalline GeSe by Doping <u>Prof. Peng Jiang</u> , Chinese Academy of Sciences Co-Authors: Zhiwei Huang, Yuanhu Zhu, Xinhe Bao
1730 - 1745	A36 Zintl Phases with Rare-Earth Elements <u>Prof. Svilen Bobev</u> , University of Delaware
1745 - 1800	A37 Microscopic Dynamics of ZnSb Compounds and Its Temperature Response: From Phonons to Solid State Diffusion <u>Dr. Michael Koza</u> , Institut Laue Langevin Co-Authors: Romain Viennois, Kinga Niedziolka, Philippe Jund

Track 2 (Ballroom B)	Track 3 (Ballroom C)
B33 Multiscale Strain Field Fluctuation Leading to Glass-Like Ultralow Thermal Conductivity in Caged Skutterudites <u>Prof. Huiyuan Geng</u> , Harbin Institute of Technology Co-Author: Wei Ren	C33 Experimental Validation on 60% Reduction in \$/W by Changing Device Architecture Mr. Junphil Hwang, Yonsei University Co-Authors: <u>Woochul Kim</u> , Hoon Kim, Dimuthu Parasad Wijethunge, Hwanjoo Park, Yoomin Eom
B34 FP-LMTO Calculations of Elastic and Electronic Properties of the Filled Skutterudite TbRu₄P₁₂ under the Effect of the Pressure <u>Dr. Mokhtar Berrahal</u> , Ecole Normale Supérieure d'Oran Co-Authors: Mohammed Ameri, Nouredine Moulay	C34 Demonstration of a 5 kW Thermoelectric Generator for Industrial Waste Heat Utilization <u>Dr. Yu-Li Lin</u> , Industrial Technology Research Institute Co-Authors: Yi-Ray Chen, Bo-Yi Sung, Chien-Chang Wang, Chien-Hsuan Yeh
B35 Synthesis and Thermoelectric Properties of S-filled and Te-doped Skutterudites Mr. Jialiang Li, Wuhan University of Technology Co-Authors: <u>Hongtao Wang</u> , Bo Duan, Yue Yu, Hongjiang Yang, Gang Chen, Pengcheng Zhai	C35 From Development to Market Introduction of Silicide Based, Cost Efficient Thermoelectric Generators for High Temperature Waste Heat Recovery <u>Dr. Axel Schönecker</u> , RGS Development B.V. Co-Authors: Pierre-Yves Pichon, Wim van Schaik, Bert Kraaijveld, Maarten den Heijer
B36 Investigation of Electron Transport via Quantum Mechanical Estimation of Electrical Conductivities <u>Ms. Semi Bang</u> , Ewha Womans University Co-Authors: Georgy Samsonidze, Boris Kozinsky, Daehyun Wee	C36 Power Output Stability Research for Harvesting Automobile Exhaust Energy with Heat Capacity Material as Intermediate Medium Mr. <u>Longjie Xiao</u> , Wuhan University of Technology Co-Authors: Tianming He, Gangfeng Tan
B37 Experimental and Computational Investigation of Co-Sn-Te Phase Space for Advancement of Skutterudite Materials for Radioisotope Thermoelectric Generators <u>Ms. Caitlin Crawford</u> , Colorado School of Mines Co-Authors: Brenden Ortiz, Prashun Gorai, Eric Toberer	C37 The Potential of a Cascaded TEG System for the Waste Heat Usage in Railway Vehicles <u>Mr. Sebastian Wilbrecht</u> , TU Dresden, Institute of Solid Mechanics Co-Author: Michael Beitelschmidt

Wednesday, August 2, 2017	
0800 - 1730	Registration Open (Ballroom Foyer)
0815 - 0845	Speaker Meeting for Wednesday Presenters (Your Presentation Room)
1030 - 1230	Exhibits and Poster Session Open (Ballroom D-H)
1230 - 1400	Lunch Break (On Your Own)
1330 - 1730	Exhibits and Poster Session Open (Ballroom D-H)
1830 - 2030	Awards Banquet (Exhibit Hall C)
	Track 1 (Ballroom A)
	Thermoelectric Materials I: New Materials Discovery Session Chair: Prof. Yanzhong Pei, Tongji University
0900 - 0930	A38 INVITED Developing Force Multipliers for the Discovery of New Thermoelectric Materials <u>Dr. Eric Toberer</u> , Colorado School of Mines Co-Authors: Vladan Stevanovic, Prashun Gorai, Anuj Goyal, Brenden Ortiz, Caitlin Crawford, Robert McKinney
0930 - 0945	A39 Prediction and Experimental Validation of New Bulk Thermoelectrics Compositions from High-Throughput Computations <u>Dr. Anubhav Jain</u> , Lawrence Berkeley National Laboratory Co-Authors: G. Jeffrey Snyder, Umut Aydemir, Saneyuki Ohno, Zachary Gibbs, Guodong Li, Geoffroy Hautier, Guodong Yu, Francesco Ricci, Mary Anne White, Jan-Hendrik Pohls, Mark Asta, Danny Broberh, Kristin Persson, Hong Zhu, Wei Chen
0945 - 1000	A40 Theory-Driven Search for New Ternary Layered Thermoelectric Materials <u>Dr. Prashun Gorai</u> , Colorado School of Mines, NREL Co-Authors: Eric Toberer, Vladan Stevanovic



Track 2 (Ballroom B)	Track 3 (Ballroom C)
Thermoelectric Materials II: Mechanical Properties Session Chair: Dr. Kurt Star, Jet Propulsion Laboratory/California Institute of Technology	Thermoelectric Systems and Devices: Modules Session Chair: Dr. Terry Hendricks, Jet Propulsion Laboratory/California Institute of Technology
B38 INVITED Influence of Nano-Composites on Physical and Mechanical Properties of High ZT-Skutterudites <u>Dr. Gerda Rogl</u> , Vienna University of Technology Co-Authors: Andriy Grytsiva, Fainan Failamani, Markus Hohenhofer, Viktor Soprunyuk, Ernst Bauer, Peter Rogl	C38 INVITED An International Round-Robin Study on Thermoelectric Module Efficiency Testing <u>Dr. Hsin Wang</u> , Oak Ridge National Laboratory Co-Authors: Shengqiang Bai, Lidong Chen, Alexander Cuenat, Jan König, Hee-Woong Lee, Jay Maddux, Min-Wook Oh, James Salvador, Jeff Sharp, Patrick Taylor, Dimitri Vasilevskiy, Paul Verdier, Adam Wilson, Kevin Yost
B39 The Importance of Mechanical Characterization in the Development of Robust Thermoelectric Devices and Systems Mr. Samad Firdosy, Jet Propulsion Laboratory and California State Polytechnic University Co-Authors: <u>Vilupanur Ravi</u> , Fivos Drymiotis, T. Caillat, Jean-Pierre Fleurial	C39 Development of Metal Based Thermoelectric Module for Reliable Testing Reference <u>Mr. Atsushi Yamamoto</u> , National Institute of Advanced Industrial Science and Technology
B40 Influence of Grain Size on the Flexural Strength of (Bi,Sb)₂Te₃ and Bi₂(Te,Se)₃ Alloys <u>Dr. Rahul Gupta</u> , II-VI Marlow Co-Author: Jeff Sharp	C40 Recent Development of Vehicular Thermoelectric Generators <u>Mr. Byung-Wook Kim</u> , Hyundai Motor Group Co-Authors: Jinwoo Kwak, Hansaem Lee, Jong-Kook Lee



A41 - A43

	Track 1 (Ballroom A)
1000 - 1015	A41 A Fully Predictive Approach for Modeling Thermoelectric Material Properties Dr. Jesse Maassen, Dalhousie University Co-Author: Vahid Askarpour
1015 - 1030	A42 High Throughput First-Principles Calculations on Revealing the Conductive Network in Chalcogenides Dr. Jiong Yang, Shanghai University Co-Author: <u>Lili Xi</u>
1030 - 1100	Break in Exhibit Hall (Ballroom D-H)
	Thermoelectric Materials I: First Principles Calculations Session Chair: Dr. Yoshiki Takagiwa, National Institute for Materials Science (NIMS)
1100 - 1115	A43 INVITED Predicted Figure-of-Merit of Half-Heusler Alloys - Importance of Scattering Mechanisms Prof. Ole Martin Løvvik, SINTEF Materials and Chemistry
1115 - 1130	

B41 - B43

C41 - C43

Track 2 (Ballroom B)	Track 3 (Ballroom C)
B41 Enhanced Fracture Toughness of Al And Bi Co-Doped Mg₂Si by Metal Nanoparticle Decoration Mr. Gwansik Kim, Yonsei University Co-Authors: Hwijong Lee, Byunghun Lee, Jong Wook Roh, Inwoong Lyo, Byung-Wook Kim, Kyu Hyoung Lee, Wooyoung Lee	C41 Fabrication of Micro-Thermoelectric Modules for Heat Management of Photonic Systems Dr. Heiko Reith, Leibniz-Institute for Solid State and Materials Research Co-Authors: Javier García, Guodong Li, Melanie Mohn, Nicolas Pérez, David Lara-Ramos, Heike Schlörb, Gabi Schierning, Kornelius Nielsch
B42 Thermomechanical Properties and High-Temperature Stability of FeNbSb p-type Half-Heusler Compound Ms. Wanthana Silpawilawan, Osaka University Co-Authors: Ken Kurosaki, Yuji Ohishi, Hiroaki Muta, Shinsuke Yamanaka	C42 Reliable Thermoelectric Module Design under Opposing Requirements from the Structural and Thermoelectric Considerations Mr. Naveen Karri, Washington State University Co-Author: Changki Mo
Break in Exhibit Hall (Ballroom D-H)	Break in Exhibit Hall (Ballroom D-H)
Thermoelectric Materials II: Micro and Nanostructure Session Chair: Dr. Pierre Poudeu, University of Michigan	Thermoelectric Systems and Devices: Interfaces/Metallization Session Chair: Dr. Ike Chi, Jet Propulsion Laboratory/California Institute of Technology
B43a Direct Observation of Dislocation Arrays Forming at Grain Boundary for High-Performance Bulk Thermoelectrics Ms. Hyeona Mun, Sungkyunkwan University Co-Authors: Sung Wng Kim, Kyu Hyoung Lee, Sang Il Kim	C43 INVITED Computational and Experimental Investigations of Interface Stability Between Thermoelectric Materials (Yb₁₄MnSb₁₁ and La_{3-x}Te₄) and Ni Dr. Zi-Kui Liu, The Pennsylvania State University Co-Authors: <u>Yongjie-Hu</u> , Jorge Paz Soldan Palma, Samad Firdosy, Kurt E. Star, Jean-Pierre Fleurial, Vilupanur Ravi, Yi Wang
B43b Design and Characterization of High-Performance Thermoelectrics: From Atomic-to Meso-Scale Ms. Xiaomi Zhang, Northwestern University Co-Authors: Jann Grovogui, Gangjian Tan, Tyler Slade, Shiqiang Hao, Christopher Wolverton, Mercuri G. Kanatzidis, Vinayak Dravid	



	Track 1 (Ballroom A)
1130 - 1145	<p>A44 Data-Driven Evaluation of Effective Relaxation Times for Real Thermoelectric Materials <u>Dr. Yukari Katsura</u>, The University of Tokyo</p> <p>Co-Authors: Masaya Kumagai, Yoji Imai, Sakiko Gunji, Takushi Kodani, Hideyasu Ouchi, Kazuki Tobita, Naoki Sato, Kaoru Kimura, Koichi Katahara</p>
1145 - 1200	<p>A45 An ab initio Transport Model for Mobility and Seebeck Coefficient (AMSET) and its Application to Thermoelectrics Design <u>Dr. Alireza Faghaninia</u>, Lawrence Berkeley National Laboratory</p> <p>Co-Authors: Francesco Ricci, Geoffroy Hautier</p>
1200 - 1215	<p>A46 Simulation of ZT Enhancement in Composite Materials <u>Dr. Paul von Allmen</u>, Jet Propulsion Laboratory/California Institute of Technology</p> <p>Co-Authors: Trinh Vo, Sabah Bux, Jean-Pierre Fleurial</p>
1215 - 1230	<p>A47 Understanding Seebeck Coefficients of Thermoelectric Materials <u>Dr. Yi Wang</u>, The Pennsylvania State University</p> <p>Co-Authors: Samad A. Firdosy, Kurt E. Star, Jean-Pierre Fleurial, Vilupanur Ravi, Long-Qing Chen, Zi-Kui Liu</p>
1230 - 1400	Lunch Break (<i>On Your Own</i>)

Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B44 Cs Corrected TEM for Layer Structured Thermoelectric Materials <u>Prof. Jiaping He</u>, Southern University of Science and Technology</p>	<p>C44 Modelling, Preparation and Evaluation of Thermoelectric Semiconductor-Metal-Semiconductor Interfaces <u>Prof. Gao Min</u>, Cardiff University</p> <p>Co-Authors: M. Philips, A. Al-Abdulla</p>
<p>B45 Development of Novel Thermoelectric Alloy Systems Through Fine Tuning the Eutectic Microstructure <u>Ms. Sireesha Panithi</u>, Indian Institute of Science</p> <p>Co-Authors: Kamanio Chattopadhyay, Ramesh Mallik</p>	<p>C45 Effect of Ni Based Diffusion Barrier Layer Between Doped PbTe and Cu Electrodes on the Interfacial Stability and High Temperature Thermoelectric Properties <u>Dr. Duraisamy Sivaprahasam</u>, ARC-International</p> <p>Co-Authors: B. Jayachandran, V.Rithu, T.Dasgupta, R.Gopalan</p>
<p>B46 Microstructure Control of β-FeSi₂ Thermoelectric Alloys Based on Phase Equilibria <u>Prof. Yoshisato Kimura</u>, Tokyo Institute of Technology</p> <p>Co-Author: Yaw Wang Chai</p>	<p>C46 Au Contacts for BiTe Material in Thermoelectric Power Generator Applications <u>Dr. Ramesh Koripella</u>, Sandia National Laboratories</p> <p>Co-Author: Nancy Yang</p>
<p>B47 Enhancing Silicon Reactivity in Molten Salts for Production of Thermoelectric Nanosilicides <u>Dr. Steven Girard</u>, University of Wisconsin - Whitewater</p>	<p>C47 First Principles Study on the Tensile Properties and Failure Mechanism of the CoSb₃/Ti Interface <u>Mr. Wuchang She</u>, Wuhan University of Technology</p> <p>Co-Author: Lisheng Liu</p>
Lunch Break (<i>On Your Own</i>)	Lunch Break (<i>On Your Own</i>)

Thermoelectric Materials I: Phonon Scattering	
Session Chair: Dr. Raphael Hermann, Oak Ridge National Laboratory	
1400 - 1415	<p>A48 INVITED Phonon Scattering Mechanisms Investigated with Neutron and X-Ray Scattering Coupled with First-Principles Simulations Dr. <u>Olivier Delaire</u>, Duke University</p> <p>Co-Authors: Jennifer Niedziela, Dipanshu Bansal, Chen Li, Andrew May, Jiawang Hong, Jie Ma, Ayman Said, Georg Ehlers, Doug Abernathy</p>
1415 - 1430	
1430 - 1445	<p>A49 A Modified Anharmonic Inelastic Model for Thermal Boundary Conductance between Two Solids Prof. <u>Mei-Jiau Huang</u>, National Taiwan University</p>
1445 - 1500	<p>A50 Thermal Transport Modeling of Asymmetric Nanostructures by Monte-Carlo Ray Tracing Mr. <u>Ziqi Yu</u>, University of California, Irvine</p> <p>Co-Author: Jaeho Lee</p>
1500 - 1515	<p>A51 The Influence of Grain Boundary Structure on Phonon Scattering Mr. <u>Riley Hanus</u>, Northwestern University</p> <p>Co-Authors: Anupam Garg, G. Jeffrey Snyder</p>



Thermoelectric Materials II: Inorganic/Organic Structures	Thermoelectric Systems and Devices: Device Development and Validation II
Session Chair: Dr. Peter Sharma, Sandia National Laboratories	Session Chair: Dr. Vladimir Jovovic, Gentherm Inc.
B48a	C48a
<p>Interface Engineering in Flexible Hybrid Films for Improved Thermoelectric Performance Dr. Jaeyun Moon, University of Nevada Las Vegas</p> <p>Co-Authors: <u>Hyeunhwan An</u>, Matthew Pusko</p>	<p>Analyses of Transport Properties of Production Level Nanostructured n-type Bi₂Te_{3-x}Se_x Alloys Manufactured using Wet-Chemistry Dr. <u>Audrey Chamoire</u>, ThermoAura, Inc.</p> <p>Co-Authors: Alex O'Toole, Charles Glew, Rutvik Mehta</p>
B48b	C48b
<p>High Performance and Flexible Nanostructured Thermoelectric Materials by Additive Printing of Colloidal Nanocrystals Prof. <u>Yanliang Zhang</u>, Boise State University</p> <p>Co-Authors: Tony Varghese, Courtney Hollar, Nick Kempf</p>	<p>Fused Deposition Modeling of ABS/Nylon + Bi₂Te₃ Thermoelectric Generators Mr. Cagri Oztan, University of Miami</p> <p>Co-Author: <u>Emrah Celik</u></p>
B49	C49
<p>Hierarchical Porous Nanocomposite of Bismuth Telluride/Cellulose Fibers for High-Performance Flexible Thermoelectrics Dr. <u>Kaiping Tai</u>, Shenyang National Laboratory for Materials Science</p> <p>Co-Authors: Qun Jin, Wenbo Shi, Yang Zhao, Jixaing Qiao, Hao Lei, Kaiping Tai, Xin Jiang</p>	<p>Thermal Response Behavior of Fe/Bi₂Te_{2.7}Se_{0.3} Transverse Thermoelectric Devices Mr. Hongyu Zhou, Wuhan University of Technology</p> <p>Co-Authors: <u>Nuan Tang</u>, Pei luo, Hongyu Zhou, Xin Mu, Wenhua Hu, Xinle Chen, Wenyu Zhao, Ping Wei, Wanting Zhu, Xiaolei Nie, Qingjie Zhang</p>
B50	C50
<p>Two-Dimensional Chalcogenide Nanoplate Assemblies for Flexible Thermoelectric Applications Dr. <u>Chaochao Dun</u>, Wake Forest University</p> <p>Co-Authors: Corey A. Hewitt, David. L. Carroll</p>	<p>Performance of Un-Coated and Coated HMS-Al₃Mn₃Si₄ and HMS-Mg₂Si 20-Pair Devices Prof. <u>Tsuyoshi Kajitani</u>, Tohoku University and IMCO Co., Ltd.</p> <p>Co-Authors: K. Takahashi, K. Oku, M. Saito, H. Suzuki</p>
B51	C51
<p>Open Die Pressing of Thermoelectric Materials: A Solution for Material Sintering and Texture Inducing Dr. <u>Carlo Fanciulli</u>, CNR - ICMATE</p> <p>Co-Authors: M. Coduri, C. Tomasi, S. Boldrini, S. Battiston, S. Fiameni, A. Famengo, A. Ferrario, H. Abedi, F. Passaretti</p>	<p>Air-to-Air Thermoelectric Heat Pump for Heating, Ventilation and Air-Conditioning in Passive Houses Dr. <u>Alvaro Martinez</u>, Public University of Navarra</p> <p>Co-Authors: Sergio Diaz de Garayo, David Astrain</p>



	Track 1 (Ballroom A)
1515 - 1530	<p>A52 Multiscale Analysis of Phonon Scattering in Silicon by Multiple Morphological Defects Prof. <u>Dario Narducci</u>, University of Milano-Bicocca</p> <p>Co-Authors: Bruno Lorenzi, Riccardo Dettori, Marc T. Dunham, Claudio Melis, Rita Tonini, Luciano Colombo, Aditya Sood, Kenneth E. Goodson</p>
1530 - 1600	<p>Break in Exhibit Hall (Ballroom D-H)</p>
1600 - 1630	<p>Thermoelectric Materials I: Novel Materials Session Chair: Prof. G. Jeffrey Snyder, Northwestern University</p>
1630 - 1645	<p>A53 INVITED What Causes High Thermoelectric Performance <u>Dr. David Parker</u>, Oak Ridge National Laboratory</p>
1645 - 1700	<p>A54 Enhancement of Seebeck Coefficient due to Spin-Fluctuation in Weakly Ferromagnetic $Fe_2VAl_{0.9}Si_{0.1}$ <u>Dr. Naohito Tsujii</u>, National Institute for Materials Science</p> <p>Co-Authors: Akinori Nishide, Jun Hayakawa, Takao Mori</p>
1700 - 1715	<p>A55 Realization of the Spin Seebeck Effect in Bulk Nanocomposites <u>Dr. Stephen Boona</u>, The Ohio State University</p> <p>Co-Authors: Koen Vandaele, Joseph Heremans</p>
1715 - 1730	<p>A56 Magnetolectric Interaction and Transport Behaviors in Magnetic Nanocomposite Thermoelectric Materials Mr. Xin Mu, Wuhan University of Technology</p> <p>Co-Authors: <u>Zhiyuan Liu</u>, Wenyu Zhao, Ping Wei, Qingjie Zhang, Wanting Zhu, Xianli Su, Xinfeng Tang, Jihui Yang, Yong Liu, Jing Shi, Yimin Chao, Siqi Lin, Yanzhong Pei</p>

Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B52 High Thermoelectric Performance of p-BiSbTe Alloys prepared by Ultra-Fast Thermal Explosion Mr. Dongwang Yang, Wuhan University of Technology</p> <p>Co-Author: <u>Gang Zheng</u>, Wei Liu</p>	<p>C52 Variable Cross-Sectional Area of Thermoelectric Element Legs for Maximum Performance <u>Ms. Joanna Rivero</u>, University of Pittsburgh</p> <p>Co-Authors: Juliana M. Said, Corey E. Clifford, Matthew M. Barry</p>
Break in Exhibit Hall (Ballroom D-H)	Break in Exhibit Hall (Ballroom D-H)
<p>Thermoelectric Materials II: Novel TE Materials and Processes Session Chair: Dr. Christofer Whiting, University of Dayton</p>	<p>Thermoelectric Systems and Devices: Thermionics Session Chair: Dr. Steve Savoy, Nanohmics, Inc.</p>
<p>B53 INVITED Utilization of Magnetic Semiconductors and Bottom-Up Nanostructuring for Thermoelectric Enhancement <u>Prof. Takao Mori</u>, National Institute for Materials Science</p>	<p>C53 INVITED Solid State Thermionic Power Generators <u>Dr. Mona Zebarjadi</u>, University of Virginia</p>
<p>B54 Quasicrystals as a Thermoelectric Material <u>Dr. Yoshiki Takagiwa</u>, National Institute for Materials Science (NIMS)</p>	<p>C54 Lightweight Hybrid Thermionic+Thermoelectric Generators for Aerial Propulsion <u>Ms. Ankita Ghoshal</u>, Reebetz, Inc.</p>
<p>B55 Self-Propagating High-Temperature Synthesis and Thermoelectric Properties of ZrNiSn Thermoelectric Material <u>Mr. Tiezheng Hu</u>, Wuhan University of Technology</p>	<p>C55 Thermionic Emission from Nano-Patterned Materials <u>Mr. Karun Vijayaraghavan</u>, Nanohmics, Inc.</p> <p>Co-Authors: Jesus Meza-Galvan, Kyle Hoover, Chris Mann, Taisuke Ohta, Leora Peltz, Steve Savoy</p>
<p>B56 Vacancy and Anti-Site Disorder Scattering in AgBiSe₂ Thermoelectrics <u>Mr. Jan Peilstöcker</u>, Justus-Liebig-Universität Giessen</p> <p>Co-Authors: Erdogan Celik, David Hartung, Mathias S. Wickleder, Peter J. Klar, Wolfgang Zeier</p>	<p>C56 Integrated Combustion Chamber/Heat Exchanger/Thermoelectric Generator <u>Mr. Michael Adams</u>, The Ohio State University</p> <p>Co-Authors: Yuanhua Zheng, Joseph Heremans</p>



Track 1 (Ballroom A)	
1715 - 1730	A57 Magnon Drag Thermopower of Binary Ferromagnetic Alloys Fe-Co and Ni-C Mr. Yuanhua Zheng, The Ohio State University Co-Authors: Nicolas Antolin, Wolfgang Windl, Joseph Heremans
1830 - 2030	Awards Banquet (Exhibit Hall C)

Thursday, August 3, 2017	
0800 - 1530	Registration Open (Ballroom Foyer)
0815 - 0845	Speaker Meeting for Thursday Presenters (Your Presentation Room)
0900 - 1100	Exhibits and Poster Session Open (Ballroom D-H)
1100 - 1330	Exhibits and Poster Dismantle (Ballroom D-H)
1230 - 1400	Lunch Break (On Your Own)
1600 - 2200	Access to Universal Studios Theme Park if Driving on Own (Reception 1830 - 2030 in the Globe Theater)
1630 - 1700	Buses Depart for Universal Studios Hollywood (from Green Street)
2045 & 2200	Buses Depart from Universal Studios Hollywood
Thermoelectric Materials I: Oxides Session Chair: Dr. Fivos Drymiotis, Jet Propulsion Laboratory/California Institute of Technology	
0900 - 0915	A58 INVITED Oxygen Partial Pressure Dependence of Power Factor in SrTiO₃ Ceramics: Are Thermoelectric Oxides "Stable in Air"? Dr. Peter Sharma, Sandia National Laboratories Co-Authors: Harlan Brown-Shaklee, Jon F. Ihlefeld
0915 - 0930	

Track 2 (Ballroom B)	Track 3 (Ballroom C)
B57 Crystal Structure and Low-Temperature Thermoelectric Properties of Metastable Cubic Ge₂Sb₂Te₅ Bulk Material Dr. Atsuko Kosuga, Osaka Prefecture University Co-Authors: Tatsuro Omoto, Yoshiki Kubota, Ikuya Yamada	C57 Modeling and Analysis of the Effect of Thermal Losses on Thermoelectric Generator Performance using Effective Properties Mr. Heonjoong Lee, Virginia Polytechnic Institute and State University Co-Authors: Jeff Sharp, David Stokes, Matthew Pearson, Shashank Priya
Awards Banquet (Exhibit Hall C)	Awards Banquet (Exhibit Hall C)

Thermoelectric Materials II: Thin Films Session Chair: Prof. Mona Zebarjadi, University of Virginia	Thermoelectric Systems and Devices: Solar Thermoelectric and Various Applications Session Chair: Mr. Bill Nesmith, Jet Propulsion Laboratory/California Institute of Technology
B58a High Power Factor Ge-Sb-Te Thermoelectric Thin Film: An Evidence of Temperature-Induced Band Convergence Dr. Deniz Wong, Academia Sinica Co-Authors: Masoud Aminzare, Hsiang-Ting Lien, Wen-Pin Hsieh, Sun-Tang Chang, Li-Chyong Chen, Kuei-Hsien Chen	C58a Solar Thermoelectric Generator with Water Heating using Cylindrical Module Dr. Hirofumi Hazama, Toyota Central R&D Labs., Inc. Co-Authors: Yumi Masuoka, Akitoshi Suzumura, Masato Matsubara, Shin Tajima, Ryoji Asahi
B58b Thermoelectric Nanocrystalline SiGe Thin Films Prepared by the Combination of AIC and SiO₂ Reduction Mr. Marc Lindorf, University of Augsburg Co-Authors: Anna Zera, Manfred Albrecht	C58b Technical and Economical Analysis of the Use of a Solar Thermoelectric Generator (STEG) for Rural Electrification Programs Mr. Francisco Montero, Pontificia Universidad Católica de Chile Co-Author: Amador Guzmán Cuevas



	Track 1 (Ballroom A)
0930 - 0945	<p>A59 Transport Properties and Defect Behavior of Hybrid Halide Perovskites <u>Dr. Heng Wang</u>, Lawrence Berkeley National Laboratory</p> <p>Co-Author: Jeff Urban</p>
0945 - 1000	<p>A60 Improvement of Thermoelectric Properties and Durability for Oxide Modules <u>Dr. Ryoji Funahashi</u>, National Institute of Advanced Industrial Science & Technology</p> <p>Co-Authors: Tomoyuki Urata, Yoko Matsumura, Miho Suzuki, Hiroyo Murakami, Hitomi Ikenishi, Shinya Sasaki, Shigeaki Sugiyama</p>
1000 - 1015	<p>A61 Band Structure Engineering in Thermoelectric BiCuSeO <u>Mr. GuangKun Ren</u>, The University of Washington</p> <p>Co-Authors: Shanyu Wang, Jiong Yang, Wenqing Zhang, Jihui Yang, Yuan-Hua Lin, Ce-Wen Nan</p>
1015 - 1030	<p>A62 Ultra-Low Thermal Conductivity in β-Pyrochlore-Type Oxides <u>Dr. Michitaka Ohtaki</u>, Kyushu University</p>
1030 - 1100	<p>Break in Exhibit Hall (Ballroom D-H)</p>

Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B59 The Impact of Annealing on the Properties of p-type $\text{Bi}_{0.4}\text{Sb}_{1.6}\text{Te}_3$ Films <u>Dr. Jacob Podkaminer</u>, Sandia National Laboratories</p> <p>Co-Authors: Michael P. Siegal, Doug L. Medlin, Peter A. Sharma, Ana L. Lima-Sharma</p>	<p>C59 Solar Thermoelectric Generators via Advanced Latent Heat Storage <u>Dr. Eric Toberer</u>, Colorado School of Mines</p> <p>Co-Authors: David Ginley, Phil Parilla, Greg Glatzmaier, Chris Oshman, Jon Rea, Abhishek Singh, Nate Siegel, Jeff Sharp, Michele Olsen</p>
<p>B60 Hydrogenated Nano-/Micro-Crystalline Silicon Thin-Films for Thermoelectrics Mr. Edwin Acosta, Heriot-Watt University</p> <p>Co-Author: <u>Nick Bennett</u></p>	<p>C60 Impact of Temperature-Dependent Material Properties on Thermoelectric Low Grade Heat Recovery <u>Prof. Kazuaki Yazawa</u>, Purdue University</p> <p>Co-Authors: Yee Rui Koh, Ali Shakouri</p>
<p>B61 Synthesis of p- and n-type $\text{Ge}_{1-x}\text{Sn}_x$ Thin Films toward New Group-IV Thermoelectric Materials <u>Dr. Masashi Kurosawa</u>, Nagoya University, JST-PRESTO</p> <p>Co-Authors: Yukihiko Imai, Taisei Iwahashi, Akio Ohta, Noriyuki Uchida, Yuji Ohishi, Tatsuro Maeda, Osamu Nakatsuka, Shigeaki Zaima</p>	<p>C61 Thermal-Fluid-Electric Coupled Modeling of a Novel Pin-Fin Integrated Thermoelectric Device <u>Ms. Juliana Said</u>, University of Pittsburgh</p> <p>Co-Authors: Joanna Rivero, Corey E. Clifford, Michael J. Durka, Austen D. Fradeneck, Mark L. Kimber, Matthew M. Barry</p>
<p>B62 Correlating Microstructural Quality with Thermoelectric Properties to Optimize $\text{Bi}_{1-x}\text{Sb}_x$ Thin Films <u>Dr. Michael Siegal</u>, Sandia National Laboratories</p> <p>Co-Authors: Ana L. Lima-Sharma, Peter A. Sharma, C. Rochford</p>	<p>C62 Thermosyphon Heat Exchanger with Phase Change to Enhance Thermoelectric Generators <u>Mr. Miguel Araiz</u>, Public University of Navarre</p> <p>Co-Authors: David Astrain, Alvaro Martinez, Patricia Aranguren</p>
<p>Break in Exhibit Hall (Ballroom D-H)</p>	<p>Break in Exhibit Hall (Ballroom D-H)</p>



	Track 1 (Ballroom A)
	Thermoelectric Materials I: Phonon Transport Session Chair: Dr. Alexandra Zevalkink, Michigan State University
1100 - 1130	A63 INVITED Phonon Confinement in (SnSe)(MoSe₂) Ferecrystals Dr. Raphael Hermann, Oak Ridge National Laboratory Co-Authors: B. Klobes, M. Y. Hu, Matt Beekman, D. C. Johnson
1130 - 1145	A64 Rattling Vibrations Induced Ultralow Lattice Thermal Conductivity and High Thermoelectric Performance Dr. Shiqiang Hao, Northwestern University
1145 - 1200	A65 Capturing Anharmonicity in a Lattice Thermal Conductivity Model for High-Throughput Predictions Mr. Samuel Miller, Northwestern University Co-Authors: Prashun Gorai, Brenden Ortiz, Anuj Goyal, Duanfeng Gao, Scott A. Barnett, Thomas O. Mason, G. Jeffrey Snyder, Qin Lv, Vladan Stevanovic, Eric Toberer
1200 - 1215	A66 Lone Pair Electrons, Anharmonicity, and Thermal Conductivity of SnO Mr. Shimpei Kuwahara, Osaka University Co-Authors: Ken Kurosaki, Yuji Ohishi, Hiroaki Muta, Shinsuke Yamanaka

Track 2 (Ballroom B)	Track 3 (Ballroom C)
Thermoelectric Materials II: Characterization Methods Session Chair: Dr. Hsin Wang, Oak Ridge National Laboratory	Thermoelectric Systems and Devices: Applications Session Chair: Mr. David Woerner, Jet Propulsion Laboratory
B63 INVITED Development of p-Type Polycrystalline Silicon Germanium for the NIST High Temperature Seebeck Coefficient Standard Reference Material® Dr. Joshua Martin, National Institute of Standards and Technology Co-Authors: Winnie Wong-Ng, Dezhi Wang, Zhifeng Ren	C63 INVITED Demonstrated High-Performance, High-Power Skutterudite Thermoelectric Modules for Terrestrial Applications Dr. Terry Hendricks, Jet Propulsion Laboratory/California Institute of Technology Co-Authors: Fivos Drymiotis, Obed Villalpando, Kevin Yu, Kevin Smith, Billy Li, Samad Firdosy, Jean-Pierre Fleurial, Chen-Kuo Huang, Pawan Gogna, David J. Neff
B64 Thermocouple Development for Stable Seebeck Measurements at 0-1000 °C Mr. Stephen Kang, Northwestern University Co-Authors: Ian Witting, G. Jeffrey Snyder	C64 Thermoelectric Generators for Automotive Applications: A New Approach to Reach the Cost-Benefit Target Mr. Martin Kober, German Aerospace Center
B65 Development of a ZT-Measurement System for Thin Films Plus Additional Hall Constant Determination in a Temperature Range from LN₂ up to 300°C Dr. Heiko Reith, Leibniz-Institute for Solid State and Materials Research Co-Authors: Vincent Linseis, Friedemann Völklein, Peter Woias, Kornelius Nielsch	C65 Thermoelectric Generator 50W Experimental Performances in DC and PWM Mr. John Stockholm, Marvel Thermoelectrics Co-Author: James Glick
B66 Probing Amorphous Components in High Temperature TE Materials by in situ Total Scattering and the Pair Distribution Function (PDF) Method Dr. Hazel Reardon, Aarhus University Co-Authors: Lasse Rabøl Jørgensen, Christian Zeuthen, Anders Bank Blichfeld, Bo Brummerstedt Iversen	C66 Nanostructured Thermoelectric Generators for Efficient Energy Harvesting and Waste Heat Recovery Prof. Yanliang Zhang, Boise State University Co-Authors: Nick Kempf, Xiaowei Wang, Martin Cleary, Luke Schoensee

	Track 1 (Ballroom A)
1215 - 1230	<p>A67 Phonon Lifetimes in the Perovskite Model-Thermoelectric SrTiO₃ Investigated with High-Resolution Neutron Spectroscopy <u>Dr. Klaus Habicht</u>, Helmholtz-Zentrum Berlin</p> <p>Co-Authors: Katharina Fritsch, Tommy Hofmann, Zhilun Lu, Felix Groitl, Thomas Keller</p>
1230 - 1400	Lunch Break (On Your Own)
	Thermoelectric Materials I: Composites Session Chair: <u>Dr. Yinglu Tang</u> , EMPA
1400 - 1415	<p>A68 INVITED Less Is More: Thermoelectric Performance Enhancements in Polymer-Free Semiconducting Single-Walled Carbon Nanotube Networks <u>Dr. Andrew Ferguson</u>, National Renewable Energy Laboratory</p> <p>Co-Authors: Azure D. Avery, Brenna Norton-Baker, Ben H. Zhou, Isaac E. Gould, Jounghee Lee, Eui-Sup Lee, Elisa M. Miller, Rachelle Ihly, Devin Wesenberg, Kevin S. Mistry, Sarah L. Guillot, Zbyslaw R. Owczarczyk, Barry L. Zink, Yong-Hyun Kim, Jeffrey L. Blackburn</p>
1415 - 1430	
1430 - 1445	<p>A69 Flexible Thermoelectrics by Assembling Porous Nanocomposite of Highly-ordered Bi₂Te₃ on Carbon Nanotubes Scaffold <u>Dr. Kaiping Tai</u>, Shenyang National Laboratory for Materials Science</p> <p>Co-Authors: Qun Jin, Song Jiang, Yang Zhao, Jianhang Qiu, Bin Yang, Kaiping Tai, Chang Liu, Xin Jiang, Huiming Cheng</p>



Track 2 (Ballroom B)	Track 3 (Ballroom C)
<p>B67 Characterization of Thermoelectric Materials by a Novel Heat Balance Method <u>Dr. Patrick Taylor</u>, U.S. Army Research Laboratory</p> <p>Co-Authors: Jay Maddux, Samad Firdosy, Kevin Yu, Jean-Pierre Fleurial, Terry Hendricks</p>	<p>C67 High Temperature Thermoelectric Heat Exchanger and Optimization of Dissipative Systems Applied in Automotive <u>Mr. Fabio Puglia</u>, ISC SRL</p> <p>Co-Authors: L. Barin, V. Ottolina, F. Riva, A. Mari, C. Fanciulli, H. Abedi</p>
Lunch Break (On Your Own)	Lunch Break (On Your Own)
Thermoelectric Materials II: Characterization Methods II Session Chair: <u>Dr. Joshua Martin</u> , National Institute of Standards and Technology	Thermoelectric Systems and Devices: Novel Device Concepts Session Chair: <u>Dr. Kyle Wilkinson</u> , Sheetak, Inc.
<p>B68 INVITED Novel Scanning Thermal Microprobe for Simultaneous Mapping of Thermal Conductivity and Thermopower <u>Prof. Yanliang Zhang</u>, Boise State University</p> <p>Co-Author: <u>Nick Kempf</u></p>	<p>C68a Anisotropic Thermoelectric Devices Made from Single Crystal Microwires <u>Prof. Tito Huber</u>, Howard University</p> <p>Co-Authors: <u>Leonid Konopko</u>, Albina Nikolaeva, Anna Kobylanskaya</p>
	<p>C68b Synthesis, Consolidation and Testing of 'Bi-Sb Chalcogenide Thermoelectric Nanomaterials Having Platy Nano-Inclusions in 2D Stack Morphology' by Simple and Cost Effective Processes <u>Dr. Jasa Ram</u>, Defence Research & Development Organization</p> <p>Co-Author: Partha Ghosal</p>
<p>B69 A New Concept for the Measurement of the Figure of Merit of Thermoelectric Materials <u>Dr. Marc-Antoine Thermitus</u>, NETZSCH Instruments</p> <p>Co-Authors: Rebekka Taubmann, Andre Lindemann</p>	<p>C69 Heat Sink Design and Integration of Thermoelectric Conversion Unit for Thermoregulatory Clothing System <u>Ms. Xing Lu</u>, University of Colorado, Boulder</p> <p>Co-Authors: Dongliang Zhao, Ronggui Yang</p>



A70 - A72

Track 1 (Ballroom A)	
1445 - 1500	A70 Enhanced Thermoelectric Properties of F4TCNQ Doped P3HT-Sb₂Te₃ Composite Films for Thermoelectric Applications Ms. Eunhwa Jang, University of Maryland Co-Authors: <u>Deepa Madan</u> , Aswani Poosapati, Lori Shilling
1500 - 1515	A71 Investigation of Orderly Degree and Electrical Transport Properties of P3HT on Multiscale Level <u>Ms. Sanyin Qu</u> , Shanghai Institute of Ceramics, Chinese Academy of Sciences Co-Authors: Qin Yao, Liming Wang, Lidong Chen
1515 - 1530	A72 Enhanced Power Factor of Bi₂Te₃ Nanowire-PEDOT:PSS Composite using DMSO Solvent Vapor Annealing <u>Mr. Wan Sik Kim</u> , Gwangju Institute Science and Technology Co-Authors: Gi Won Goo, Hyunmyung Lee, Ji Young Jo
1530	Conference Adjourns
1600 - 2200	Access to Universal Studios Hollywood Theme Park if Driving on Your Own <i>(Reception 1830 - 2030 in the Globe Theater)</i>
1630 - 1700	Buses Depart for Universal Studios Hollywood <i>(from Green Street)</i>
1830 - 2030	Universal Studios Hollywood Reception (Globe Theatre)
2045	First Round of Buses Depart from Universal Studios Hollywood to Go Back to Hotels
2200	Second Round of Buses Depart from Universal Studios Hollywood to Go Back to Hotels

Friday, August 4, 2017

0900 - 1230	Jet Propulsion Laboratory Tour (Pre-registration required)
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B70 - B72

C70 - C72

Track 2 (Ballroom B)	Track 3 (Ballroom C)
B70 Phonon Dynamics of LaOBiS_{2-x}Se_x Studied by Inelastic Neutron Scattering <u>Dr. Chul-Ho Lee</u> , National Institute of Advanced Industrial Science & Technology	C70 Dynamic Simulation of an Air-to-Air Thermoelectric Heat Pump for Heating, Ventilation and Air-Conditioning in Passive Houses Dr. Alvaro Martinez, Public University of Navarra Co-Author: <u>Sergio Diaz de Garayo</u>
B71 Atomic and Modal Contributions to Lattice Thermal Conductivity in Oxides by Perturbed Molecular Dynamics <u>Mr. Susumu Fujii</u> , Osaka University Co-Author: Masato Yoshiya	C71 Temperature and Voltage Offsets in High ZT Thermoelectrics <u>Mr. George Levy</u> , Entropic Power Corporation
B72 Why Does Thermal Conductivity of XNiSn Vary for Nominally Identical Samples? <u>Dr. Matthias Schrade</u> , University of Oslo Co-Authors: Kristian Berland, Matylda Guzik, Ole Martin Løvvik, Terje G. Finstad	C72 Service Behavior of Tetrahedrite Thermoelectric Materials <u>Dr. Xiao-ya Li</u> , Shanghai Institute of Ceramics, Chinese Academy of Sciences Co-Authors: Ping Lv, Yunshan Tang, Yun Yu

POSTER SESSION

Lead Authors Are Underlined

THERMOELECTRIC SYSTEMS DESIGN & APPLICATIONS

- P01** *2018 Design Challenge for Thermoelectric Wood Stoves*
Poster Presenter: Mr. Kenneth Adler, Alliance for Green Heat
Co-Author: John Ackerly
- P02** *Use of Thermoelectric Generator for Water Flow Metering*
Poster Presenter: Dr. Abdulmohsen Alothman, King Abdulaziz City for Science and Technology
Co-Authors: Mohamed Y. Zakaria, Muhammad R. Hajj, Sami F. Masri
- P03** *Introducing a Novel Method to Estimate the Total Heat Transfer Coefficient Inside Irregular-Shape Cavities Utilizing Thermoelectric Modules: Special Application in Solar Engineering*
Poster Presenter: Mr. Amin Asadi, Aalborg University
Co-Authors: Nader Rahbar, Alireza Rezaniakolaei, Lasse Rosendahl
- P04** *Design of a Thermoelectric Cooler System for a Wearable Vest*
Poster Presenter: Dr. Alaa Attar, King Abdulaziz University
Co-Authors: Ahmed Mater Alraeqi, Khaled Faisal Alghanmi, Ahmad Abdulrahim Alshaikh
- P05** *Waste-Heat Harvesting in the Steel Industry*
Poster Presenter: Mr. Sadok Ben Salem, Institut für Energie Transformation
Co-Authors: Huu Do Nguyen, Frank Süßemilch, Gerhard Span, Nikolai Chichkov, Markus Janczewski, Thomas Chrzon, Alexander Struck, Frank Platte, Georg Bastian
- P05B** *A Novel TEG System Design: Lightweight, Compact, Scalable, and Low-Cost*
Poster Presenter: Mr. Steven Casey, VECARIUS, Inc.
- P06** *Optimization of Post-Annealing Process in Screen-Printed Thermoelectric Film for Power Generator Application*
Poster Presenter: Mr. Hyeongdo Choi, Korea Advanced Institute of Science and Technology
- P07** *Control Strategy for Thermoelectric Generator Powered Localized Air Conditioning System*
Poster Presenter: Mr. Yadong Deng, Wuhan University of Technology
Co-Authors: Yuan Ran, Tao Hu, Chuqi Su
- P08** *Research on Lightweight of Cooling Water Tank for Automotive Thermoelectric Generator*
Poster Presenter: Mr. Yadong Deng, Wuhan University of Technology
Co-Authors: XingXing Lei, ChuQi Su, Xun Liu, YiPing Wang
- P09** *Thermal Modeling of a Thermoelectric System*
Poster Presenter: Mr. Yuri Fischer, Universidade Federal de Pernambuco
Co-Authors: José Carlos Charamba Dutra



- P10** *Numerically Resolved Radiation View Factors for Single and Multi-Junction Thermoelectric Devices*
Poster Presenter: Ms. Laura Fulton, University of Pittsburgh
Co-Authors: Justin Ying, Corey E. Clifford, Matthew M. Barry
- P11** *Application and Performance of TEG-Card and Plate Thermoelectric Generator for Low-Grade Waste Heat Recycle*
Poster Presenter: Mr. Yale Guo, Guangdong Leizig Thermoelectric Technologies Co., Ltd.
Co-Authors: Carl Li, Yiping Luo, Ben Lin
- P12** *Enhanced Solar-Driven Thermoelectric Conversion with Broadband Optical Response of Metallic Nanoparticle-Fixed Beads*
Poster Presenter: Dr. Takuya Iida, Osaka Prefecture University
Co-Authors: Shiho Tokonami, Yojiro Yamamoto, Atsuko Kosuga
- P13** *Investigation of Thermal Boundary Condition Effect on Thermoelectric Module Geometry Optimization*
Poster Presenter: Mr. Dongxu Ji, Nanyang Technological University
- P14** *KW-class Power Generation from Waste Heat Recovery by Using Highly Efficient Thermoelectric Devices at Low Ambient Temperatures*
Poster Presenter: Mr. Hisashi Kano, Panasonic Corporation
Co-Authors: Kenichi Shiraishi, Hiroyuki Enami, Shinji Nakamura, Toshio Mitsuyasu, Yutaka Miyamoto, Kazutaka Yasuda, Koichi Ikemoto, Masahiro Yamamoto, Jiro Morimune, and Tetsuzo Ueda
- P15** *Flexible Thermoelectric Device Design for Maximized Energy Harvesting in Self-Powered Wearable Applications*
Poster Presenter: Mr. Choong Sun Kim, Korea Advanced Institute of Science and Technology
Co-Author: Byung Jin Cho
- P16** *Development of Thermoelectric Generator-Integrated Exhaust Heat Recovery System*
Poster Presenter: Dr. Jinwoo Kwak, Hyundai Motors Company
- P17** *Effect of Various Cross Section Configurations on the Dynamic Behavior of Thermoelectric Cooler*
Poster Presenter: Ms. Ravita Lamba, Indian Institute of Technology
Co-Author: S.C. Kaushik
- P18** *Performance Analysis and Optimization of Concentrated Solar Thermoelectric Generator*
Poster Presenter: Ms. Ravita Lamba, Indian Institute of Technology
Co-Author: S.C. Kaushik

- P19** *Direct-Fired Thermoelectric Generation System for Electric Energy and Heat Acquiring*
Poster Presenter: Mr. Ben Lin, Guangdong Leizig Thermoelectric Technologies Co., Ltd.
Co-Authors: Yiping Luo, Yale Guo, Zhigong Li, Shilong Yuan
- P20** *Application of Thermoelectric Generators to an Exhausted Cryogenic Nitrogen System with an Anti-Frozen Shielding Container*
Poster Presenter: Dr. Ming-Chyuan Lin, National Synchrotron Radiation Research Center
Co-Authors: Mei-Jiau Huang, Chih-Hung Lo
- P21** *Waste-Heat Harvesting from Steel Ladle using Thermoelectric System*
Poster Presenter: Dr. Xiangning Meng, Northeastern University
Co-Authors: Baiyi Lu, Miaoyong Zhu
- P22** *Towards Next-Generation Thermoelectric Modules: Large Scale Synthesis and Thermomechanical Characterization of the $\text{Ca}_{9-x}\text{Zn}_{4+y}\text{Sb}_9$ System*
Poster Presenter: Ms. Sriharshita Musunuri, Henry M. Jackson High School
Co-Authors: Sevan Chanakian, Sabah Bux
- P22B** *Thermomechanical Properties and Stability of $\text{Ca}_{9-x}\text{REZn}_{4+y}\text{Sb}_9$ Materials, Promising Compositions for Future Thermoelectric Device Applications*
Poster Presenter: Ms. Sevan Chanakian, Michigan State University
Co-Authors: Sriharshita Musunuri, Saneyuki Ohno, David Smiadak, Pawan Gogna, Chris Turner, Samad Firdosy, Alexandra Zevalkink, Fivos Drymiotis, G Jeffrey Snyder, Jean-Pierre Fleurial, Sabah Bux
- P23** *New Miniature Thermoelectric Coolers of the Company RMT*
Poster Presenter: Mr. Alexandr Nazarenko, RMT LTD
Co-Author: Vasily Volodin
- P24** *Maximum Power Point Tracking Converter for Improving the Vehicle Thermoelectric Generator Efficiency*
Poster Presenter: Dr. Alexey Osipkov, Bauman Moscow State Technical University
Co-Authors: Pavel Shiriaev, Konstantin Shishov, Leonid Tishchenko
- P25** *Turning Up the Heat on Energy Harvesting: Flexible Printed Thermoelectric Nanogenerators*
Poster Presenter: Mr. Canlin Ou, University of Cambridge
Co-Authors: Abhijeet Sangle, Michael Smith, Anuja Datta, Sohini Kar-Narayan
- P26** *Feasibility Study For Atmospheric Water Generator Based on Peltier Effect in Northeast of Brazil*
Poster Presenter: Mr. Henrique Palmeira Filho, Universidade Federal de Pernambuco
Co-Authors: Felipe Cardim De Araújo, José Carlos Charamba Dutra, Peterson Felipe de Freitas Almeida, Sâmia Senna Diógenes



- P27** *Modeling and Case Study of a Thermoelectric Wine Cooler Control System using Arduino*
Poster Presenter: Mr. Henrique Palmeira Filho, Universidade Federal de Pernambuco
Co-Authors: Yuri Fischer, José Carlos Charamba Dutra
- P28** *System-Level Section Optimization Design of Thermoelectric Power Generator Integrated with Both-Sides Counter or Parallel Flows for Maximum Output Power*
Poster Presenter: Dr. Shaowei Qing, Chongqing University
Co-Authors: A. Rezanian, Lasse Rosendahl, Xiaolong Gou
- P29** *Optimization of Counter Flow Heat Exchanger for Low Grade Waste Heat Recovery using Thermoelectric Generator*
Poster Presenter: Mr. Mohammad Sohel Rana, RMIT University
Co-Authors: A. Akbarzadeh, A. Date, B. Orr, Arbab Iqbal
- P30** *Development of a New Thermoelectric Generator Module to Recover Wasted Heat in Industry*
Poster Presenter: Ms. Francesca Riva, Larioesco SRL
Co-Authors: Fabio Puglia, C. Fanciulli, S. Boldrini, H. Abedi, V. Ottolina, F. Riva, A. Mari, T. Terlizze
- P31** *Electrical Power Generation from Low Grade Heat of Salinity Gradient Solar Pond using Thermoelectric Generators*
Poster Presenter: Dr. Baljit Singh, Universiti Teknologi MARA
Co-Authors: Muhammad Fairuz Remeli, Nuriadilia Bahrin, Amandeep Oberoi
- P32** *Optimal Design of a Thermoelectric Cooling Automotive Seat using a Thermoelectric Device*
Poster Presenter: Mr. Chuqi Su, Wuhan University of Technology
Co-Authors: Wenbin Dong, Yadong Deng, Xun Liu
- P33** *Analysis and Optimization of a Thermoelectric Generator as an Electrical Renewable Power Source for Biomass Boilers*
Poster Presenter: Mr. Momir Tabakovic, Slovak University of Technology, Bratislava
Co-Author: Michal Masaryk
- P34** *Thermal Harvesting Potential of the Human Body*
Poster Presenter: Mr. Moritz Thielen, ETH Zürich
Co-Authors: Gökhan Kara, Christofer Hierold
- P35** *The Simulation Investigation of Heat Exchanger with a High-Performance Structure in Thermoelectric Generators*
Poster Presenter: Dr. Yiping Wang, Wuhan University of Technology
Co-Authors: Tang Yulin, Deng Yadong, Su Chuqi, Li Shuai

- P36** *The Analysis of the Efficiency of ATEG-Based Exhaust Gas Energy Recovery from a Diesel Engine*
Poster Presenter: **Dr. Andrzej Ziolkowski, Poznan University of Technology**
Co-Authors: Pawel Fuc, Piotr Lijewski

THERMOELECTRIC DEVICE DEVELOPMENT & TESTING

- P37** *Fabrications and Optimization of Sputtered P and N-Type Bi₂Te₃-Based Thermoelectric Microdevices*
Poster Presenter: **Dr. Cheng-Lung Chen, Institute of Physics, Academia Sinica**
Co-Authors: Tsung-Heng Wu, Ju-Yu Ho, Tai-Hsiang Huang, Yang-Yuan Chen
- P38** *Theoretical Coupled Modeling of Simplified Thermoelectric Generator*
Poster Presenter: **Dr. Gang Chen, Wuhan University of Technology**
Co-Authors: Yajing Sun, Guanghui Bai, Bo Duan, Peng Li, Pengcheng Zhai
- P39** *Brush-Painted p-type Bi_{0.5}Sb_{1.5}Te₃-Epoxy Composite Thick Films for Miniaturized Flexible Thermoelectric Cooling Device*
Poster Presenter: **Mr. Weikang Hou, Wuhan University of Technology**
Co-Authors: Wenyu Zhao, Hongyu Zhou, Wenhua Hu, Xinle Chen, Ping Wei, Wanting Zhu, Xiaolei Nie, Qingjie Zhang
- P40** *Development of Evaluation Instrument in Thermoelectric Module of Several Uses*
Poster Presenter: **Dr. Satoaki Ikeuchi, Advance Riko, Inc.**
Co-Authors: Junichi Ishikawa, Kenji Shimada
- P41** *Numerical Simulation Analysis on Thermoelectric Properties of Tilted Mg₂Si/Ni Multilayer Composites*
Poster Presenter: **Dr. Takashi Itoh, Nagoya University**
- P42** *A Comprehensive Performance Modeling of a PbTe Thermoelectric Generator*
Poster Presenter: **Ms. Eurydice Kanimba, Virginia Tech**
Co-Authors: Matthew Pearson, Jeff Sharp, David Stokes, Shashank Priya, Zhiting Tian
- P43** *A Novel Fabrication Method of Flexible Thermoelectric Generator using Screen-Printing Technique and Laser Multi-Scanning Lift-Off Process*
Poster Presenter: **Dr. Sun Jin Kim, Korea Advanced Institute of Science & Technology**
- P44** *Development of Bulk Metallic Glass (BMG) Powders for Brazing Pastes of High Temperature Thermoelectric Modules*
Poster Presenter: **Mr. Yu-Seong Lee, Korea University of Technology and Education**
Co-Authors: Soon-Mok Choi, Soonil Lee, Byoung-Joon Choi, Il-Ho Kim



- P45** *Development of High Temperature Thermoelectric Device Technologies to Validated Materials Performance and Long Term Stability for Advanced ThermoElectric Couple (ATEC)*
Poster Presenter: **Mr. Billy Li, Jet Propulsion Laboratory/California Institute of Technology**
Co-Authors: Samad Firdosy, Kevin Smith, Vilupanur Ravi, Obed Villalpando, David Uhl, Jennifer Ni, Kurt Star, Michell Aranda, Sabah Bux, Sevan Chanakian, George Nakatsukasa, Jean-Pierre Fleurial
- P46** *Analysis of Measuring Thermoelectric Modules for Standardization*
Poster Presenter: **Mr. Takayuki Morioka, Mitsubishi Electric**
Co-Authors: Akira Yamasita, Hidetada Tokioka
- P47** *Thermoelectric Modules Made of Nanostructured PbTe and Colusites: Materials Development and Module Fabrication*
Poster Presenter: **Dr. Michihiro Ohta, National Institute of Advanced Industrial Science & Technology**
Co-Authors: Yohan Bouyrie, Priyanka Jood, Koichiro Suekuni, Ken Kurosaki, Toshiro Takabatake, Mercouri G. Kanatzidis, Atsushi Yamamoto
- P48** *Degradation Mechanisms of Skutterudite Couples in the Proposed eMMRTG and Evaluation of the Resulting Performance with LPPM Tool*
Poster Presenter: **Dr. Jong-Ah Paik, Jet Propulsion Laboratory/California Institute of Technology**
Co-Authors: Eric Wood, Thierry Caillat, Terry Hendricks
- P49** *Metallization Characteristics of P-Type Poly Crystalline SnSe for Highly Efficient Thermoelectric Module*
Poster Presenter: **Dr. Sang Hyun Park, Korea Institute of Energy Research**
Co-Authors: Yeong Seon Kim, Chung-Yul Yoo, Hana Yoon, In Chung, Yong-Seog Seo
- P50** *Comparative Study of the Influence of Thermal Interface Materials in the Thermal Contact Resistance of Thermoelectric Generators*
Poster Presenter: **Ms. Gurutze Pérez, Public University of Navarre**
Co-Authors: Antonio Rodríguez, David Astrain, Alvaro Martinez, Patricia Aranguren, Oscar Herrero
- P51** *Utilization of Dimensionless Parameters to Optimize a Thermoelectric Generator for Automotive Exhaust Waste Heat Recovery*
Poster Presenter: **Ms. Kelsey Pitschel, Western Michigan University**
Co-Author: HoSung Lee
- P52** *Fabrication of Effective Diffusion Barrier Between PbTe and Ni Electrode for Thermoelectric Modules*
Poster Presenter: **Mr. Xavier Reales Ferreres, University of Wollongong**
Co-Authors: Sima Aminorroaya Yamini, Andrew Manettas, Azdiar Gazder

- P53** *Thermoelectric Cooling by Holey Silicon and the Role of Thermal Conductivity Anisotropy*
Poster Presenter: Mr. Zongqing Ren, University of California, Irvine
Co-Author: Jaeho Lee
- P54** *Adhesion Force Test for Bulk Metallic Glass (BMG) on Cu/Ni Electrodes for Thermoelectric Modules*
Poster Presenter: Mr. Seung-Ho Seo, Korea University of Technology and Education
Co-Authors: Soon-Mok Choi, Soonil Lee, Byoung-Joon Choi, Il-Ho Kim
- P55** *Performance Analysis of Thermoelectric Cooler with Segmented Configurations*
Poster Presenter: Dr. Limei Shen, Huazhong University of Science and Technology
Co-Authors: Zhilong Tu, Dongfang Sun, Guanyu Liu, Huanxin Chen
- P56** *Development of Skutterudite-Based Thermopile for High Temperature Venus Heat Flux Sensor*
Poster Presenter: Ms. Sutine Sujittosakul/Jet Propulsion Laboratory, California Institute of Technology
Co-Authors: Kevin L. Smith, Brian Phan, Samad Firdosy, Billy Li, George Nakatsukasa, Jean-Pierre Fleurial, Suzanne Smrekar, Michael Pauken
- P57** *Performance Analysis of Thermoelectric Modules Consisting of Square Truncated Pyramid Elements - Under Constant Heat Flux*
Poster Presenter: Prof. Dr. Ryosuke Suzuki, Hokkaido University
Co-Author: Sae Oki
- P58** *Thermoelectric Energy Recovery Module for the Vehicle Ventilation System Solar via Thermal Collector*
Poster Presenter: Dr. Gangfeng Tan, Wuhan University of Technology
Co-Author: Ruobing Zhan
- P59** *Porous-Layered Array of Functionalised ZnO Nanosheets on Carbon Fabric as a Wearable Material for the Thermoelectric Applications*
Poster Presenter: Mr. Pandiyarasan Veluswamy, Shizuoka University
Co-Authors: Faizan Khan, Shota Sakamoto, Yasuhiro Hayakawa, Hiroya Ikeda
- P60** *Experimental Evaluation of GaSn Interface Layer Stability under Mechanical Stress and Thermal Performance*
Poster Presenter: Mr. Jue Wang, Virginia Tech
Co-Authors: Wenjie Li, David Stokes, Matthew Pearson
- P61** *Thermoelectric Properties Research Base on the Organic Semiconduction Material and Device*
Poster Presenter: Dr. Ling Xu, Huazhong University Science and Technology



- P62** *Advanced Skutterudite-Based Unicouples for a Proposed Enhanced Multi-Mission Radioisotope Thermoelectric Generator: An Update*
Poster Presenter: Mr. Brian Phan and Mr. Kevin Yu, Jet Propulsion Laboratory/California Institute of Technology
Co-Authors: Ike Chi, Samad Firdosy, Kevin L. Smith, Chen-Kuo Huang, Sutine Sujittosakul, Billy Li, Jong-Ah Paik, Pawan Gogna, Stanley Pinkowski, Jean-Pierre Fleurial, Thierry Caillat
- P63** *Stable Electrical Contacts for High Temperature SiGe Thermoelectric Generators*
Poster Presenter: Ms. Bo Zhang, University of Texas at Dallas
Co-Authors: Bruce E. Gnade, Tao Zheng, Husam N. Alshareef
- P64** *Full-Parameter Numerical Optimization of Bismuth Telluride/Skutterudite Segmented Modules*
Poster Presenter: Mr. Qihao Zhang, Shanghai Institute of Ceramics, Chinese Academy of Sciences
Co-Authors: Jincheng Liao, Yunshan Tang, Shengqiang Bai, Xun Shi, Ctirad Uher, Lidong Chen
- P65** *Study on Enhanced Heat Transfer Mechanism of the Thermoelectric Generator*
Poster Presenter: Dr. Zheng Zhang, South China University of Technology
Co-Authors: Zijian Chen, Hongwu Liu, Hao Yue, Dongbo Chen, Delei Qi

THERMOELECTRIC MATERIALS & MODELING

- P66** *Ultralow Thermal Conductivity in Full-Heusler Semiconductors*
Poster Presenter: Dr. Maximilian Amsler, Northwestern University
Co-Authors: Jiangang He, Christopher Wolverton
- P67** *Enhanced Thermoelectric Figure of Merit in p-Type $\text{SnS}_{0.2}\text{Se}_{0.8}$ Solid Solution Doped with Ag*
Poster Presenter: Mr. Khan Asfandiyar, Tsinghua University
Co-Authors: Zhiliang Li, Tian-Ran Wei, Fu-Hua Sun, Huaichao Tang, Jin-Feng Dong, Jing-Feng Li
- P68** *Enhancement of Thermoelectric Properties at Mild-Temperature Range in Te-Excess N-Type $\text{Cu}_{0.01}\text{Bi}_2\text{Te}_{2.3+x}\text{Se}_{0.7}$ Compounds*
Poster Presenter: Ms. Song Yi Back, Kyung Hee University
Co-Authors: Jong-Soo Rhyee, Hyunyong Cho
- P69** *Optimizing the Thermoelectric Properties of a Computationally Predicted Material: The Case of AISb*
Poster Presenter: Mr. Trevor Bailey, University of Michigan
Co-Authors: Alan Olvera, Alex A. Page, Pierre Ferdinand Poudeu, Ctirad Uher
- P70** *Material Design of Thermoelectrically Highly Efficient Heusler Compounds for the XXI Century – An Economic Point of View*
Poster Presenter: Dr. Benjamin Balke, University Stuttgart
- P71** *Thermal and Electric Properties of the $\text{FeAs}_{2-x}\text{Sb}_x$ ($x=0, 1, \text{ or } 2$) Marcasite Compounds from First-Principles Calculations*
Poster Presenter: Ms. Semi Bang, Ewha Womans University

- P72** *New Copper-Based Thermoelectric Sulfides*
Poster Presenter: **Dr. Tristan Barbier, CRISMAT**
Co-Authors: R. Frésard, D. Berthebaud, E. Guilmeau, V. Eyert, A. Maingnan
- P73** *Direct Powder Metallurgical Synthesis of Se and Te-doped $\text{Yb}_{14}\text{MnSb}_{11}$ via Spark-Plasma Sintering*
Poster Presenter: **Mr. Dashiell Barrett, University of California, Davis**
Co-Authors: Elizabeth Wille, Susan Kauzlarich
- P74** *Enhanced Thermoelectric Performance of TAGS-85 with Magnetic Dopants*
Poster Presenter: **Dr. Graeme Blake, University of Groningen**
Co-Authors: Anil Kumar, Paul A. Vermeulen, Bart J. Kooi, Stefan Schwarzmüller, Oliver Oeckler, Srinivas Popuri, Jan-Willem Bos
- P75** *Temperature Dependent Thermoelectric Properties of Vacuum Hot Pressed Pb Doped Bi_2Te_3 Alloy*
Poster Presenter: **Mr. Anil Bohra, Bhabha Atomic Research Centre**
Co-Authors: Ranu Bhatt, Ajay Singh, Shovit Bhattacharya, Ranita Basu, D. K. Aswal, K. P. Muthe
- P76** *The Dependence of Thermoelectric Parameters of the Vapor-Phase Condensation PbTe : Bi on their Thickness*
Poster Presenter: **Dr. Victor Boryk, Vasyl Stefanyk Precarpathian National University**
Co-Author: Kovalchuk Mykhailo
- P77** *Non-Stoichiometry in Colusites $\text{Cu}_{26}\text{A}_2\text{E}_6\text{S}_{32}$ (A: Nb, Ta; E: Sn, Ge) for High Thermoelectric Figure of Merit*
Poster Presenter: **Dr. Yohan Bouyrie, National Institute of Advanced Industrial Science & Technology**
Co-Authors: Yuta Kikuchi, Priyanka Jood, Koichiro Suekuni, Toshiro Takabatake, Atsushi Yamamoto, Michihiro Ohta
- P78** *Thermoelectric Properties of $\text{Bi}_{0.5}\text{Na}_{0.5}\text{Ti}_{0.3}$ -Doped $\text{Ca}_3\text{Co}_4\text{O}_9$ Ceramics Fabricated by Spark Plasma Sintering*
Poster Presenter: **Ms. Suwapitcha Buntham, Chiang Mai University**
Co-Authors: Anucha Watcharapasorn, Metaya Kitiwan, Takashi Goto
- P79** *Influence of Morphology of Surface and Structural Orientation Features of SnTe : 1% Sb Vapor-Phase Condensates on Their Thermoelectric Parameters*
Poster Presenter: **Dr. Nazar Bushkov, Vasyl Stefanyk Precarpathian National University**
- P80** *Synthesis and Thermoelectric Properties of $(\text{Ce}_{1-z}\text{Pr}_z)\text{Fe}_{4-x}\text{CoSb}_{12}$ Skutterudites*
Poster Presenter: **Ms. Ye-Eun Cha, Korea National University of Transportation**
Co-Authors: Il-Ho Kim, Dong-Kil Shin



- P81** *ZT Enhancement in Transition Metal Composites $\text{La}_{3-x}\text{Te}_4$ via Composite Assisted Funneling of Electrons*
Poster Presenter: **Mr. Dean A. Cheikh, University of California, Los Angeles**
Co-Authors: Sabah Bux, James Ma, Paul von Allmen, Trinh Vo, Jean-Pierre Fleurial, Bruce Dunn
- P83** *Mg₂Sn Based Solid Solution for Low-Cost and High Performance Thermoelectric Applications*
Poster Presenter: **Prof. Kuei-Hsien Chen, Institute of Atomic and Molecular Sciences, Academia Sinica**
Co-Authors: Rathinam Vasudevan, Kanupriya Sachdev, Malay Banerjee, Li-Chyong Chen
- P84** *Lattice Dislocation Engineering for Thermoelectric Enhancements*
Poster Presenter: **Mr. Zhiwei Chen, Tongji University**
Co-Author: Yanzhong Pei
- P85** *Facile Chemical Synthesis and Enhanced Thermoelectric Properties of Ag Doped SnSe Nanoplates*
Poster Presenter: **Mr. Chia Hua Chien, Institute of Physics, Academia Sinica**
Co-Authors: Cheng-Lung Chen, Chung Chieh Chang, Yang-Yuan Chen, Chih Hao Lee
- P86** *Enhancement of Thermoelectric Properties in Cu-Doped $\text{Bi}_2\text{Te}_{2.7}\text{Se}_{0.3}$ by Hot-Deformation*
Poster Presenter: **Mr. Hyunyoung Cho, Kyung Hee University**
Co-Authors: Song Yi Back, Jong-Soo Rhyee
- P87** *The Effect of Texturing on Thermoelectric Transport Properties of the Polycrystalline SnSe*
Poster Presenter: **Mr. Jun-Young Cho, Seoul National University**
- P88** *Achieving ZT = 2.2 with Bi-Doped n-type SnSe Single Crystals*
Poster Presenter: **Prof. Sunglae Cho, University of Ulsan**
Co-Authors: Anh Tuan Duong, Van Quang Nguyen, Ganbat Duvjir, Van Thiet Duong, Jungdae Kim, Suyong Kwon, Jae Yong Song, Jae Ki Lee, Ji Eun Lee, Su-Dong Park, Taewon Min, Jaekwang Lee
- P89** *Effect of Multi-Substitution on the Thermoelectric Performances of the $\text{Ca}_{1-x}\text{Yb}_x\text{Sb}_{10-y}\text{Ge}_y$ ($1.29(3) \leq x \leq 9.65(7)$; $y = 0.10(6), 0.25(14)$) System: Experimental and Theoretical Studies*
Poster Presenter: **Mr. Woongjin Choi, Chungbuk National University**
Co-Author: Tae-Soo You
- P90** *Enhancement of Thermoelectric Properties of Glycerol/PEDOT:PSS Films Prepared under an Electric Field*
Poster Presenter: **Mr. Yasunori Chonan, Akita Prefectural University**
Co-Authors: Kengo Aizawa, Takao Komiyama, Hiroyuki Yamaguchi, Takashi Aoyama, Eiichi Sakai, Jianhui Qiu
- P91** *Seebeck Enhancement by Nanocompositing SiC Nanoparticles in Bulk Nanostructured Silicon*
Poster Presenter: **Mr. Devin Coleman, University of California, Riverside**
Co-Authors: Lorenzo Mangolini, Aria Hosseini, Alex Greaney, Sabah Bux, Jean-Pierre Fleurial

- P92** *Tuning Type of Charge Carriers and Thermoelectric Properties of Yb-Filled Co-Skutterudite using Dual Substitution*
Poster Presenter: Mr. Keshav Dabral, Indian Institute of Technology Bombay
- P93** *The Role of Correlated Electrons in Thermoelectric Properties of Filled Skutterudites*
Poster Presenter: Dr. Shahab Derakhshan, California State University, Long Beach
Co-Author: Sabah Bux
- P94** *Thermoelectric Properties of Yb_{14-x}Ce_xMnSb₁₁*
Poster Presenter: Ms. Kasey Devlin, University of California, Davis
Co-Authors: Jason Grebenkemper, Sabah Bux, Susan Kauzlarich
- P95** *Strategies for Enhancement of Thermoelectric Performance in the Gas Atomized Bi_{0.5}Sb_{1.5}Te₃ Alloys for Mass Market Applications*
Poster Presenter: Mr. Peyala Dharmaiah, Kongju National University
Co-Author: Soon Jik Hong
- P96** *Thermoelectric Performance of Off-Stoichiometric MnTe Prepared by Mechanical Alloying and Spark Plasma Sintering*
Poster Presenter: Mr. Jin-Feng Dong, Tsinghua University
Co-Author: Jing-Feng Li
- P97** *Enhanced Thermoelectric Performance in Chalcogenide Nanoplates via Self-Assembled Heterojunction Architectures*
Poster Presenter: Dr. Chaochao Dun, Wake Forest University
Co-Authors: Corey A. Hewitt, David. L. Carroll
- P98** *Improved Thermoelectric Figure of Merit of Nanostructured PbTe Synthesized by a Melt Spinning Method*
Poster Presenter: Dr. Preeyakarn Eaksuwanchai, Osaka University
Co-Authors: Ken Kurosaki, Michihiro Ohta, Priyanka Jood, Yuji Ohishi, Hiroaki Muta, Shinsuke Yamanaka
- P99** *Enhanced Thermoelectric Properties of SnSe Polycrystals via Texture Control*
Poster Presenter: Mr. Dan Feng, South University of Science and Technology of China
Co-Authors: Jiaqing He, Zhen-Hua Ge, Di Wu, Yuexing Chen, Ju Li
- P100** *Experimental Analysis of Phase Transformations at Thermoelectric-Metal Interfaces*
Poster Presenter: Mr. Samad Firdosy, Jet Propulsion Laboratory/California Institute of Technology
Co-Authors: Kurt Star, Jean-Pierre Fleurial, Vilupanur Ravi, Yong-Jie Hu, Yi Wang, Zi-Kui Liu



- P101** *On the Influence of Different Synthesis Routes on the Structure and Thermoelectric Properties of Yb_xCo₄Sb₁₂*
Poster Presenter: Dr. Katharina Fritsch, Helmholtz Zentrum Berlin für Materialien und Energie
Co-Authors: Britta Ryll, Andreas Schmitz, Pamela Whitfield, Andreas Hoser, Alexandra Franz, Johannes de Boor, Eckhard Müller, Klaus Habicht
- P102** *Enhancement of Thermoelectric Properties of Ce_{0.9}Fe_{3.75}Ni_{0.25}Sb₁₂ p-type Skutterudite by Tellurium Addition*
Poster Presenter: Dr. Liangwei Fu, Southern University of Science and Technology
- P103** *Analysis of High-Temperature Formation Phases and Thermoelectric Properties on CuGaTe₂*
Poster Presenter: Mr. Yosuke Fujii, Osaka Prefecture University
Co-Author: Atsuko Kosuga
- P104** *Development of High Performance and Cost Effective Thermoelectric Material*
Poster Presenter: Dr. Swapnil Ghodke, Toyota Technological Institute
Co-Authors: Akio Yamamoto, Tsunehiro Takeuchi
- P105** *Enhancement of Thermoelectric Performance in the Vicinity of Breakdown of Topological Crystalline Insulator by PbSe Alloying in (Pb_{0.5}Sn_{0.5}Te)_{1-x}(PbSe)_x*
Poster Presenter: Mr. Dianta Ginting, Kyung Hee University
Co-Authors: Jong-Soo Rhyee, Chan-Chieh Lin, Ga Reoung Kim, Jae Hyun Yun
- P106** *Multiple Doping Effects on Thermoelectric Properties and Thermal Stability of Mg₃(Si_{0.3}Sn_{0.7})*
Poster Presenter: Mr. Gagan Kumar Goyal, Indian Institute of Technology
Co-Author: Titas Dasgupta
- P107** *Experimental Validation of New Classes of Thermoelectric Oxides Recommended by Machine Learning Algorithms*
Poster Presenter: Mr. Jake Graser, University of Utah
Co-Authors: Liu Zixiao, Taylor D. Sparks
- P108** *A New Carbon Composite - Using Ultrananocrystalline Diamond*
Poster Presenter: Mr. Gordon Grunden, Blue Sky Sciences, Inc.
- P109** *Structural and Microstructural Investigation of Ti_{1-x}Hf_xNi_ySn Half-Heusler Compounds*
Poster Presenter: Dr. Matylda Guzik, University of Oslo & Department of Physics, Institute for Energy Technology
Co-Authors: Matthias Schrade, Raluca Tofan, Kristian Berland, Magnus H. Sørby, Anette E. Gunnæs, Clas Persson, Bjørn C. Hauback
- P110** *Microstructure and Thermoelectric Properties of p-type Bi₂Te₃ Alloys by Powder Metallurgy*
Poster Presenter: Mr. Jin Koo Han, Kongju National University
Co-Authors: Eunbin Kim, Jar-Myung Koo, Kap-Ho Lee, Soon-Jik Hong

- P111** *Thermoelectric Studies of Graphene Antidot Lattices on Substrates*
Poster Presenter: Dr. Qing Hao, University of Arizona
Co-Author: Dongchao Xu
- P112** *Designing Thermoelectric Oxide with High Power Factor and Low Lattice Thermal Conductivity*
Poster Presenter: Dr. Shiqiang Hao, Northwestern University
Co-Authors: Jiangang He, S. Shahab Naghavi, Christopher Wolverton, Yi Xia, Vidvuds Ozolinš
- P113** *Carrier Density Tuning in $\text{Cu}_2\text{CoTi}_3\text{S}_8$ by Oxidative Extraction of Cu*
Poster Presenter: Mr. Katsuaki Hashikuni, Hiroshima University
Co-Authors: Koichiro Suekuni, Kosuke Watanabe, Yohan Bouyrie, Michihiro Ohta, Michitaka Ohtaki, Toshiro Takabatake
- P114** *Comprehensive Study on the Thermoelectric Properties of Co_2MnSi and Co_2FeSi*
Poster Presenter: Prof. Kei Hayashi, Tohoku University
Co-Authors: Mao Eguchi, Yuzuru Miyazaki
- P115** *Electronic Transport Properties and Band Structure of 2-D Material NaSn_2As_2*
Poster Presenter: Mr. Bin He, The Ohio State University
Co-Authors: Maxx Arguilla, Yaxian Wang, Nicholas Cultrara, Joshua Goldberger, Wolfgang Windl, Joseph Heremans
- P116** *Effects of Fe_3O_4 Magnetic Nanoparticles on the Thermoelectric Properties of Heavy-Fermion YbAl_3 Materials*
Poster Presenter: Ms. Danqi He, Wuhan University of Technology
Co-Authors: Wenyu Zhao, Cuncheng Li, Shifang Ma, Zhiyuan Liu, Ping Wei, Qingjie Zhang
- P117** *Phonon Scatterings in the $\text{Fe}_2\text{VAI/W}$ Superlattice with Structural Imperfection at the Inter-Layer Boundary*
Poster Presenter: Dr. Satoshi Hiroi, National Institute for Materials Science
Co-Author: Tsunehiro Takeuchi
- P118** *Low-Temperature Synthesis and Thermoelectric Performance of Praseodymium Telluride, Pr_3Te_4 Series*
Poster Presenter: Ms. Brea Hogan, Jet Propulsion Laboratory/California Institute of Technology
Co-Authors: Dean A. Cheikh, Trinh Vo, Paul von Allmen, Bruce Dunn, Jean-Pierre Fleurial, Sabah Bux
- P119** *Electronic and Thermoelectric Properties of AlXTe_3 ($X = \text{Si, Ge, Sn}$)*
Poster Presenter: Dr. Dexuan Huo, Hangzhou Dianzi University
Co-Authors: Zhong Chu, Wentao Tan, Xiaodan Qu, Kunpeng Su
- P120** *High Thermoelectric Performance of p-type Solution Processed SnTe Nanocomposite through Band Engineering*
Poster Presenter: Dr. Maria Ibáñez, ETH Zürich
Co-Authors: Roger Hasler, Beatrice Kuster, Andreu Cabot, Maksym V. Kovaleno



- P121** *Non-Oxide and Oxide-Based Thermoelectric Functional Materials: A Multi-Metric Comparative Hybrid Life Cycle Assessment and Environmental Profile Evaluation*
Poster Presenter: Dr. Taofeeq Ibn-Mohammed, The University of Sheffield
Co-Authors: Lenny Koh, Ian Reaney, Derek Sinclair, Whitney Schmidt
- P122** *Influence of Synthesis Processes on the Thermoelectric Properties of SnTe*
Poster Presenter: Dr. Dorra Ibrahim, Institut Jean Lamour
Co-Authors: Christophe Candolfi, Philippe Masschelein, Anne Dauscher, Christopher Semprimoschnig, Bertrand Lenoir
- P123** *Transport Property Modeling to Compare n- and p-Type Mg_3Sb_2*
Poster Presenter: Mr. Kazuki Imasato, Northwestern University
Co-Authors: Saneyuki Ohno, Stephen Kang, G. Jeffrey Snyder
- P124** *Ga-Doped ZnO Films for Transparent Thermoelectric Materials with High Power Factor*
Poster Presenter: Mr. Takafumi Ishibe, Osaka University
Co-Authors: Atsuki Tomeda, Kentaro Watanabe, Yoshiaki Nakamura
- P125** *Evaluating the Life-Cycle Environmental Impacts of Polymer-Derived SiOCN Thermoelectric for Automotive Applications*
Poster Presenter: Mr. Rakesh Iyer, Clemson University
Co-Authors: Adhimoolam Bakthavachalam Kousaalya, Srikanth Pilla
- P126** *Thermoelectric Properties of Polymer-Derived SiOCN Ceramics*
Poster Presenter: Mr. Rakesh Iyer, Clemson University
Co-Author: Srikanth Pilla
- P127** *Controlled Synthesis of High-Purity Bi_2Te_3 Nanowires via Template-Assisted Growth Approach*
Poster Presenter: Dr. Pengxia Ji, Wuhan University of Technology
Co-Authors: Wenyu Zhao, Xin Mu, Cuncheng Li, Shifang Ma, Ping Wei, Wanting Zhu, Xiaolei Nie, Qingjie Zhang
- P128** *Enhanced Thermoelectric Properties of PEDOT:PSS/Polyaniline Nanocomposites*
Poster Presenter: Prof. Rungping Jia, Shanghai Institute of Technology
Co-Author: Yong Du
- P129** *Thermoelectric Properties of n-Type $\text{Bi}_2\text{Te}_{3-x}\text{Se}_x$ Prepared by Hot Extrusion*
Poster Presenter: Mr. Sung-Jin Jung, Korea Institute of Science and Technology
Co-Authors: Seung-Hyub Baek, Hyung-Ho Park, Seong Keun Kim, Jin-Sang Kim
- P130** *Effect of Fe_2TiSn Nano-inclusions on Thermoelectric Properties of $(\text{Zr,Hf})\text{NiSn}$ Half-Heusler Alloys*
Poster Presenter: Mr. Han-Byul Kang, Virginia Tech
Co-Authors: Wenjie Li, Ge Nie, Jue Wang, Scott Huxtable, Shashank Priya

- P131** *Influence of Vanadium on Thermoelectric Properties of Fe-Based Full Heulser Alloys*
Poster Presenter: Dr. Vladimir Khovaylo, National University of Science and Technology "MISIS"
Co-Authors: Anastasiya Taranova, Andrey Voronin, Dmitriy Karpenkov, Mikhail Gorshenkov, Dmitry Moskovskikh, Ashim Yerzhan, Talgat Inerbaev
- P132** *Enhanced Thermoelectric Performance of p-type Sb_2Te_3 Films by in-situ Generation of Ag_2Te Nanoprecipitates*
Poster Presenter: Dr. Jiwon Kim, Korea Institute of Materials Science
Co-Authors: Kyu Hyoung Lee, Jae-Hong Lim, Nosang V. Myung
- P133** *Influence of Element Substitution on Corrosion Behavior of Bi_2Te_3 -Based Compounds*
Poster Presenter: Dr. Hitoshi Kohri, Kogakuin University
Co-Author: Takayoshi Yagasaki
- P134** *Polymorphism of Thermoelectric TAGS-85*
Poster Presenter: Mr. Anil Kumar, Zernike Institute for Advanced Materials
- P135** *Enhanced Figure of Merit of Hydrothermally Synthesized Bi_2Te_3 -MWCNT Nanocomposite*
Poster Presenter: Mr. Sunil Kumar, Indian Institute of Technology Delhi
Co-Authors: Deepti Chaudhary, Neeraj Khare
- P136** *Thermoelectric Properties of As-Based 122 Systems*
Poster Presenter: Ms. Haruno Kunioka, Tokyo University of Science, AIST
Co-Authors: Kunihiro Kihou, Hiroataka Nishiate, Atsushi Yamamoto, Chul-Ho Lee
- P137** *Silicon-Based Nanocomposites as Thermoelectric Materials*
Poster Presenter: Dr. Ken Kurosaki, Osaka University
Co-Authors: Sora-at Tanusilp, Kazuto Shimizu, Yuji Ohishi, Hiroaki Muta, Shinsuke Yamanaka
- P138** *High Thermoelectric-Performance Cu_2Ag_xSe Polycrystalline Material Fabricated using a Conventional Sintering Method*
Poster Presenter: Dr. Kwok Ho Lam, The Hong Kong Polytechnic University
Co-Author: Dongliang Shi
- P139** *Enhancing the Figure of Merit in Nano-Composite Thermoelectric Materials with Aerogel*
Poster Presenter: Dr. Tian-Wey Lan, Institute of Physics, Academia Sinica
- P140** *Microstructural Characteristics of Mg_2Si -Based Thermoelectric Materials*
Poster Presenter: Prof. Ho Seong Lee, Kyungpook National University
Co-Authors: Jeong In, Ji Eun Lee, Su-Dong Park
- P141** *Enhanced Thermoelectric Performance of PEDOT:PSS/PANI-CSA Polymer Multilayer Structure*
Poster Presenter: Ms. Hye Jeong Lee, Gwangju Institute of Science and Technology
Co-Authors: Gopinathan Anoop, Hyeon Jun Lee, Chingu Kim, Ji-Woong Park, Jaeyoo Choi, Heesuk Kim, Yong Jae Kim, Eun Ji Lee, Sang-Gil Lee, Young-Min Kim, Ji Young Jo



- P142** *Thermal Stability and Transport Properties of n-Type $Mg_3Sb_{2-x}Bi_x$*
Poster Presenter: Dr. Kathleen Lee, Jet Propulsion Laboratory/California Institute of Technology
Co-Authors: Sabah Bux, Jean-Pierre Fleurial
- P143** *Anisotropic Temperature-Dependent Thermal Conductivity Measurement of Al_2O_3/ZnO Superlattice Films by using 3- ω Method*
Poster Presenter: Mr. Won-Yong Lee, Chung-Ang University
Co-Authors: Sang-Kwon Lee, No-Won Park, Yoseop Yoon
- P144** *Thermoelectric Properties of the Tetrahedrite-Tennantite Solid Solutions: $Cu_{12}Sb_{4-x}As_xS_{13}$ and $Cu_{10}Co_{2-x}Sb_{4-x}As_xS_{13}$ ($0 \leq x \leq 4$)*
Poster Presenter: Mr. Petr Levinsky, Institute of Physics of the Czech Academy of Sciences
Co-Authors: Christophe Candolfi, Anne Dauscher, Janusz Tobola, Bertrand Lenoir, Jiri Hejtmanek
- P145** *Thermoelectric Properties of Doped Polydopamine Thin Films*
Poster Presenter: Mr. Haoqi Li, Temple University
Co-Authors: Yao Zhao, Yaroslav V. Aulin, Eric Borguet, Dmitriy A. Dikin, Fei Ren
- P146** *Synthesis-Pressure Impact on Thermoelectric Properties of $Mg_{1.97}Al_{0.03}Si$ Prepared by High-Pressure High-Temperature Method*
Poster Presenter: Mr. Jialiang Li, Wuhan University of Technology
Co-Authors: Bo Duan, Yue Yu, Houjiang Yang, Gang Chen, Xiaojun Hu, Peng Li, Pengcheng Zhai
- P147** *Thermal Duration Stability and Mechanical Property of Mg_2Si / Cu Thermoelectric Joints*
Poster Presenter: Dr. Peng Li, Wuhan University of Technology
Co-Authors: Lanlan Cai, Pei Wang, Qi Luo, Pengcheng Zhai, Qingjie Zhang
- P148** *Enhanced Thermoelectric Properties of $Zn_{1-x}Ga_xO$ Ceramics via Micro/Nano-Structure Fabrication*
Poster Presenter: Ms. Dou-Dou Liang, University of Science and Technology Beijing
Co-Authors: Dai-Bing Zhang, He-Zhang Li, Bo-Ping Zhang
- P149** *Importance of Low Sound Velocity for Thermoelectrics*
Poster Presenter: Ms. Siqi Lin, Tongji University
Co-Authors: Zhiwei Chen, Yanzhong Pei
- P150** *Anisotropic $Bi_{2-x}In_xTe_{2.7}Se_{0.3}$ of Enhanced Compositional Homogeneity with Superior Thermoelectric Properties*
Poster Presenter: Dr. Dongmei Liu, Friedrich Schiller University Jena
Co-Authors: Martin Seyring, Steffen Teichert, Markus Rettenmayr

- P151** *Graphene-Like Tungsten Diselenide as a Promising Thermoelectric Material*
Poster Presenter: **Mr. Yaochun Liu, Tsinghua University**
- P152** *Thermoelectric and Magnetic Properties of Nanostructured n-type $Ti_{0.25}Zr_{0.25}Hf_{0.5}(Ni,Fe)_xSn_{0.975}Sb_{0.025}$ Half-Heusler Alloys*
Poster Presenter: **Mr. Ruiming Lu, University of Michigan**
Co-Authors: Pierre Ferdinand Poudeu
- P153** *Wrinkled Superlattice Leads to Ultralow Thermal Conductivity*
Poster Presenter: **Dr. Xu Lu, Chongqing University**
Co-Authors: Yanci Yan, Xiaoyuan Zhou, Bing Zhang, Xiaodong Han
- P154** *Enhanced Thermoelectric Performance of the Ternary PbTe-SrTe-MnTe Alloy System*
Poster Presenter: **Dr. Jun Luo, Shanghai University**
Co-Authors: Li You, Jiye Zhang, Kai Guo, Hangtian Zhu, Lin Gu, Zhenzhong Yang, Xin Li, Jiong Yang, Wenqing Zhang
- P155** *Large Enhancements in Thermoelectric Performance of n-type PbTe-GeTe Alloys at Low Temperature*
Poster Presenter: **Dr. Zhongzhen Luo, Northwestern University**
- P156** *Decreasing Thermal Conductivity of Half-Heusler Alloy ZrNiSn by Substitutions*
Poster Presenter: **Mr. Mofasser Mallick, Indian Institute of Technology Bombay**
Co-Author: Satish Vitta
- P157** *Effect of La Doping on High Temperature Thermoelectric Properties of the Layered Compound $LiCoO_2$*
Poster Presenter: **Mr. Mofasser Mallick, Indian Institute of Technology Bombay**
Co-Author: Satish Vitta
- P158** *Enhanced High Temperature Figure-of-Merit of Na_xCoO_2 Achieved by a Combination of Na Non-Stoichiometry and Co-Substitution*
Poster Presenter: **Mr. Mofasser Mallick, Indian Institute of Technology Bombay**
Co-Author: Satish Vitta
- P159** *Monte Carlo Simulation of the Temperature Rise at a Filled Skutterudite $CeRu_{4-12}P$ Surface under an Electron Beam*
Poster Presenter: **Dr. Omar Mansour, Ziane Achour University**
Co-Authors: Mokhtar Berrahal, Nouredine Moulay, Zoulikha Hafsi
- P160** *Process Scale-Up for Manufacturing a New Class of Bulk Nanomaterials with High Thermoelectric Figure-of-Merit from Bottom-Up Wet-Chemistry*
Poster Presenter: **Dr. Rutvik Mehta, ThermoAura, Inc.**
Co-Authors: Audrey Chamoire, Alexander O'Toole, Charles Glew, Douglas DeSario
- P161** *Electronic Optimization of $Bi_2Te_{3-x}Se_x$ Alloys for Thermoelectric Power Generation Applications*
Poster Presenter: **Ms. Omer Meroz, Ben-Gurion University of the Negev**
Co-Author: Yaniv Gelbstein



- P162** *SnO: An Oxide Thermoelectric Candidate*
Poster Presenter: **Mr. Samuel Miller, Northwestern University**
Co-Authors: Prashun Gorai, Umut Aydemir, Anuj Goyal, Scott A. Barnett, Thomas O. Mason, Vladan Stevanovic, Eric Toberer, G. Jeffrey Snyder
- P163** *Chemically Synthesized Bismuth Selenide/Polyaniline Composite for Polymer-Based Thermoelectric Applications*
Poster Presenter: **Ms. Mousumi Mitra, Indian Institute of Engineering Science and Technology**
Co-Authors: Dipali Banerjee, Chiranjit Kuls, Dipali Banerjee
- P164** *Thermoelectric Properties of Heusler-Type Off-Stoichiometric $Fe_{2-y}V_{1+x+y}Al_{1-x}$ Alloys*
Poster Presenter: **Dr. Hidetoshi Miyazaki, Nagoya Institute of Technology**
Co-Authors: Manabu Inukai, Naoki Ide, Yoichi Nishino
- P165** *Enhanced Electrical Properties of Stoichiometric $Bi_{0.5}Sb_{1.5}Te_3$ Film with High-Crystallinity via Layer-By-Layer in-situ Growth*
Poster Presenter: **Mr. Xin Mu, Wuhan University of Technology**
Co-Authors: Hongyu Zhou, Danqi He, Wenyu Zhao, Ping Wei, Wanting Zhu, Xiaolei Nie, Huijun Liu, Qingjie Zhang
- P166** *Investigation of Thermoelectric Properties of Distronium Silicide (Sr_2Si)*
Poster Presenter: **Mr. Farhan Mudasar, University of Tokyo**
Co-Authors: Yukari Katsura, Koichi Kitahara, Kaoru Kimura
- P167** *Ultra Low Thermal Conductivity of Amorphous $Si_{0.65}GO_{0.35-x}Cu_x$ Synthesized by Mechanical Alloying Process*
Poster Presenter: **Dr. Omprakash Muthusamy, Toyota Technological Institute**
Co-Authors: Shunsuke Nishino, Manabu Inukai, Masahiro Adachi, Makoto Kiyama, Yoshiyuki Yamamoto, Tsunehiro Takeuchi
- P168** *High Temperature p-type and n-type Thermoelectric Properties of $Pr_{1-x}Sr_xFeO_3$ ($0.1 \leq x \leq 0.9$)*
Poster Presenter: **Dr. Hiroshi Nakatsugawa, Yokohama National University**
Co-Authors: Itsuki Ishikawa, Miwa Saito, Yoichi Okamoto
- P169** *Incorporation of HfO₂ Nanoprecipitates: Way to Improve Half-Heusler Thermoelectric Material*
Poster Presenter: **Ms. Christelle Navone, CEA, LITEN, DTNM, SERE, L3M**
Co-Authors: Alizee Visconti, Jean Leforestier, Guillaume Bernard-Granger
- P170** *Nanostructured Thin Films Materials for Integrated Thermoelectric Devices*
Poster Presenter: **Ms. Christelle Navone, CEA Liten & University of Grenoble Alpes**
Co-Authors: Guillaume Savelli, Pascal Faucherand, Jean-Philippe Colonna
- P171** *Thermoelectric Properties of Alloys in the System Ge/Sn/Bi/Te*
Poster Presenter: **Mr. Frederik Nietschke, Leipzig University**
Co-Authors: Maria Schellschmidt, Oliver Oeckler

- P172** *Thermoelectric Properties of Topological Insulator Bi_2Te_3 Microwires and Layers*
Poster Presenter: **Prof. Albina Nikolaeva, D.Ghitu Institute of Electronic Engineering and Nanotechnologies**
Co-Authors: L.A. Konopko, I.A. Popov, I. Gherghishan, K. Rogackii, T.E. Huber
- P173** *Thermoelectric Properties and Crystallinity Evaluated by X-Ray Absorption Fine Structure in V-Doped Fe_2TiSi Full-Heusler Films*
Poster Presenter: **Mr. Akinori Nishide, Hitachi Ltd., Center for Exploratory Research**
Co-Authors: Yosuke Kurosaki, Akira Nambu, Naoto Fukatani, Shin Yabuuchi, Jun Hayakawa
- P174** *Thermoelectric Properties of Nano-Grained Si-Ge-Au Thin Film Grown by Molecular Beam Epitaxy Method*
Poster Presenter: **Dr. Shunsuke Nishino, Toyota Technological Institute**
Co-Authors: Satoshi Ekino, Manabu Inukai, Omprakash Muthusamy, Masahiro Adachi, Makoto Kiyama, Yoshiyuki Yamamoto, Tsunehiro Takeuchi
- P175** *Transition Metal Perovskite Chalcogenides, Emerging Versatile Semiconductors for Thermoelectrics*
Poster Presenter: **Mr. Shanyuan Niu, University of Southern California**
Co-Authors: Bo Sun, Huaixun Huyan, Haipeng Lu, Richard L. Brutchey, Austin Minnich, Jayakanth Ravichandran
- P176** *Predictive Study of Pressure Effect on Physical Properties of the Filled Skutterudite $\text{NdO}_4\text{P}_{12}$*
Poster Presenter: **Dr. Moulay Noureddine, University of Djillali Liabes**
Co-Authors: Ameri Mohammed, Berrahal Mokhtar, Pierre Ruterana
- P177** *Thermoelectric Properties of Nd-Doped BiCuSeO OxyseLENides*
Poster Presenter: **Mr. Andrei Novitskii, National University of Science and Technology "MISIS"**
Co-Authors: Andrey Voronin, Elena Zakharova, Dmitry Moskovskikh, Larisa Shvanskaya, Vladimir Khovaylo
- P178** *Silver-Cluster Compound, $\text{Ag}_6\text{Ge}_{10}\text{P}_{12}$: Long-Forgotten Phosphide and Its Potential as Thermoelectric Material*
Poster Presenter: **Dr. Juergen Nuss, Max Planck Institute for Solid State Research**
Co-Authors: Ulrich Wedig, Wenjie Xie, Jan Bruin, Petar Yordanov, Ralph Hübner, Anke Weidenkaff, Hidenori Takagi
- P179** *Phase Evolution and Thermoelectric Behavior in $\text{Cu}_{4-x}\text{Ag}_x\text{Se}_2$*
Poster Presenter: **Mr. Alan Olvera, University of Michigan, Ann Arbor**
Co-Authors: Trevor Bailey, Ctirad Uher, Pierre Ferdinand Poudeu
- P180** *A Novel Heat-Electric Power Conversion Mechanism without Temperature Difference using only n-type $\text{Ba}_8\text{Au}_x\text{Si}_{46-x}$ Clathrate with Au Composition Gradient*
Poster Presenter: **Yuki Osakabe, Kyushu University**
Co-Authors: Shota Tatsumi, Yuichi Kotsubo, Junpei Iwanaga, Keita Yamasoto, Shinji Munetoh, Osamu Furukimi, Kunihiko Nakashima



- P181** *The Effect of Element Substitution on Crystal Structure, Thermal Stability and Thermoelectric Properties of Nowotony Chimney-Ladder Phase FeGe_y*
Poster Presenter: **Mr. Hideyasu Ouchi, The University of Tokyo**
- P182** *Synthesis, Structure, and Transport Properties of Two Polymorphs of NiP_2*
Poster Presenter: **Mr. Bryan Owens-Baird, University of California, Davis**
Co-Author: Kirill Kovnir
- P183** *Realizing Broad Temperature Plateau From 200 To 300 °C for Stable Figure of Merit in n-type $\text{Bi}_2\text{Te}_{2.2}\text{Se}_{0.8}$ Thermoelectric Materials*
Poster Presenter: **Ms. Yu Pan, Tsinghua University**
- P184** *Effect of Ag Addition on the Thermoelectric Properties of $\text{Ca}_{2.7}\text{La}_{0.3}\text{Co}_4\text{O}_f/\text{Ag}$ Composites*
Poster Presenter: **Prof. Kyeongsoon Park, Sejong University**
Co-Authors: K. Park, J.S. Cha, D.A. Hakeem, J.W. Pi, S.A. Soomro
- P185** *In-Plane Thermoelectric Energy Generating Performance of Al_2O_3 Interlayer in Al_2O_3 -ZnO Superlattice Thin Films*
Poster Presenter: **Mr. No-Won Park, Chung-Ang University**
Co-Authors: Sang-Kwon Lee, Won-Yong Lee, Yoseop Yoon
- P186** *Synthesis and Low Temperature Properties of $\text{K}_8\text{E}_8\text{Ge}_{38}$ ($\text{E} = \text{Al}, \text{Ga}, \text{In}$)*
Poster Presenter: **Mr. Christopher Perez, University of California, Davis**
Co-Authors: Victor Bates, Susan Kauzlarich
- P187** *Electronic Structure and Thermoelectric Properties of Transition Metal Monosilicides*
Poster Presenter: **Dr. Dmitry Pshenay-Severin, Ioffe Institute**
Co-Authors: Yu.V. Ivanov, A.T. Burkov, S.V. Novikov, V.K. Zaitsev, H. Reith
- P188** *Transverse Thermoelectricity in Fibrous Composite Materials*
Poster Presenter: **Mr. Bosen Qian, Temple University**
Co-Author: Fei Ren
- P189** *The Effects of Element Doping and Nano-Inclusions on the Thermoelectric Performance of Polycrystalline SnSe*
Poster Presenter: **Prof. Xiaoying Qin, Chinese Academy of Sciences**
Co-Authors: Di Li, Hongxing Xin, Juncai Li, Haifeng Guo, Jian Zhang, Chunjun Song
- P190** *Origin and Suppression of Ionic Migration and Precipitation in Thermoelectric Liquid-Like Materials under Electric Field*
Poster Presenter: **Dr. Pengfei Qiu, Shanghai Institute of Ceramics, Chinese Academy of Sciences**
Co-Authors: Y. Liu, X. Shi, L. Chen

- P191** *Effect of Ti Substitution at Hf/Zr Sites on the Electrical and Thermal Properties of $(\text{Hf}_{0.5}\text{Zr}_{0.5})\text{NiSn}_{0.998}\text{Sb}_{0.002}$ half-Heusler Compounds*
Poster Presenter: **Mr. Jamil Rahman, Korea Institute of Ceramic Engineering & Technology**
Co-Authors: Van Du Nguyen, Chang-Hyun Lim, Weon Ho Shin, Won-Seon Seo, Myong Ho Kim, Soonil Lee
- P192** *The Role of Oxygen Vacancies on the Electrical and Thermal Properties of SrTiO_3 for Thermoelectric Application*
Poster Presenter: **Mr. Jamil Rahman, Korea Institute of Ceramic Engineering & Technology**
Co-Authors: Van Du Nguyen, Won-Seon Seo, Myong Ho Kim, Soonil Lee
- P193** *Thermoelectric Properties of Ni-Substituted Type-I Clathrates, $\text{Ba}_8\text{Ni}_x\text{Si}_{46-x}$ Compounds*
Poster Presenter: **Ms. Kalpna Rajput, Indian Institute of Technology Bombay**
Co-Author: Satish Vitta
- P194** *Enhancement in Thermoelectric Properties of TiS_2 by Sn Addition*
Poster Presenter: **Dr. Anbalagan Ramakrishnan, Institute of Atomic and Molecular Sciences, Academia Sinica**
Co-Authors: Sankar Raman, Fang Cheng Chou, Li-Chyong Chen, Kuei-Hsien Chen
- P195** *Thermoelectric Materials and Physics*
Poster Presenter: **Dr. Zhifeng Ren, University of Houston**
Co-Author: Jun Mao
- P196** *Consideration of the Middle-High Temperature Degradation Behavior of $\text{Mg}_{2+x}(\text{Sb}_{0.35}^{1-x}\text{P}_{0.7}^{1-x})_2\text{Sb}_y$*
Poster Presenter: **Dr. Tatsuya Sakamoto, Yasunaga Corporation**
Co-Authors: Yutaka Taguchi, Minoru Inada
- P197** *Thermoelectric Properties of Si Films Containing Epitaxial Nanodots of Various Materials*
Poster Presenter: **Mr. Shunya Sakane, Osaka University**
Co-Authors: Kentaro Watanabe, Takeshi Fujita, Kentarou Sawano, Takeyuki Suzuki, Yoshiaki Nakamura
- P198** *Thermoelectric Property of Ru Perovskites with Itinerant Electrons*
Poster Presenter: **Dr. Hiroya Sakurai, National Institute for Materials Science**
Co-Author: Naohito Tsujii
- P199** *Thermoelectric Generators Based on Ionic Liquids*
Poster Presenter: **Mr. Thomas Salez, CEA**
Co-Authors: Stefanie Uhl, Laure Jeandupeux, Nicolas Gauthier, Herbert Keppner, Edith Laux, Pilar Pérez, Pauline Sanglard, Roger Marti, Ennio Vanoli
- P200** *Thermoelectric Energy Conversions in Ionic Liquids*
Poster Presenter: **Mr. Thomas Salez, CEA**
Co-Authors: Veronika Zinovyeva, Botao Huang, Marco Bonetti, Michel Roger, Sawako Nakamae



- P202** *Synergistic Nanostructures in PbTe Matrix*
Poster Presenter: **Dr. Sumanta Sarkar, Northwestern University**
Co-Authors: Shiqiang Hao, Xiaomi Zhang, Christopher Wolverton, Vinayak David, Mercouri G. Kanatzidis
- P203** *Thermoelectric Properties of the Homologous Compounds $\text{Pb}_5\text{Bi}_0\text{Se}_{14-x}\text{Te}_x$ ($x = 0.0, 0.25, 0.5$ and 1.0)*
Poster Presenter: **Dr. Selma Sassi, Université de Lorraine - Institut Jean Lamour**
Co-Authors: Christophe Candolfi, Anne Dauscher, Bertrand Lenoir
- P204** *Thermoelectric Properties of Ternary Sulfides with Open Tunnel-Like Channel Structure*
Poster Presenter: **Mr. Naoki Sato, The University of Tokyo**
Co-Authors: S. Nakamura, K. Kitahara, Y. Takagiwa, K. Katsura, I. Kanazawa, K. Kimura
- P205** *Ferroelectric Phase Transition and the Lattice Thermal Conductivity of PbTe-Based Materials*
Poster Presenter: **Dr. Ivana Savic, Tyndall National Institute**
Co-Authors: Ronan Murphy, Eamonn Murray, Stephen Fahy
- P206** *Lithium Mobility in Thermoelectric Phonon-Liquid-Like Lithium Germanium Antimony Tellurides*
Poster Presenter: **Mr. Stefan Schwarzmüller, Leipzig University**
Co-Authors: Matthias Jakob, Markus Hoelzel, Paul Heitjans, Oliver Oeckler
- P207** *Role Of Cu_2Te Phase in Heavily Cu-Doped Bi_2Te_3 Nanocomposite Films: Structural Change and Thermoelectric Properties*
Poster Presenter: **Mr. Kanghyun Seo, Korea University of Technology and Education**
Co-Authors: Byeong Geun Kim, Soon-Mok Choi, Il-Ho Kim, Soonil Lee, Won Ho Shin, Byoung-Joon Choi, Seung-Ho Yang
- P208** *Effect of Sb on the Thermoelectric Properties of Skutterudite Co-Ge-Te Thin Film*
Poster Presenter: **Mr. Tzu-Hsien Shen, Institute of Atomic and Molecular Sciences, Academia Sinica**
Co-Authors: Deniz Wong, Li-Chyong Chen, Kuei-Hsien Chen
- P209** *Enhanced Power Factor of Silicon-Metal Silicide Nanocomposites by Modulation Doping*
Poster Presenter: **Mr. Kazuto Shimizu, Osaka University**
Co-Authors: K. Kurosaki, Y. Ohishi, H. Muta, S. Yamanaka
- P210** *Charge Transport and Thermoelectric Properties of $(\text{Nd}_{1-z}\text{Yb}_z)\text{Fe}_{4-x}\text{Co}_x\text{Sb}_{12}$ Skutterudites*
Poster Presenter: **Mr. Dong-Kil Shin, Korea National University of Transportation**
Co-Authors: Kyung-Wook Jang, Soon-Mok Choi, Soonil Lee, Won-Seon Seo, Il-Ho Kim
- P211** *Influence of Cylindrical and Planar Nanoholes on Thermal and Electrical Transports*
Poster Presenter: **Dr. Hosun Shin, Korea Research Institute of Standards and Science**
Co-Authors: Yun Hwan Jaung, Jung-Sub Wi, Jin Ho Ahn, Jae Yong Song

- P212** *Synthesis of Bi-Te Based Heterogeneous Structures and their Enhanced Thermoelectric Properties*
Poster Presenter: Dr. Weon Ho Shin, Korea Institute of Ceramic Engineering & Technology
Co-Authors: Jeong Seop Yoon, Mahn Jeong, Won-Seon Seo, Soonil Lee
- P213** *Optical and Thermoelectric Properties of Single-Layer of Carbon-Phosphide*
Poster Presenter: Mr. Deobrat Singh, Sardar Vallabhbhai National Institute of Technology, Surat
Co-Authors: Shivam Kansara, Sanjeev K. Gupta, Yogesh Sonvane
- P214** *Applicability of Ground State Electronic Structure in Understanding the High Temperature Thermoelectric Properties of $La_{0.75}Ba_{0.25}CoO_3$ Compound*
Poster Presenter: Mr. Saurabh Singh, Indian Institute of Technology Mandi
Co-Author: Sudhir K. Pandey
- P215** *Exploration of the $NaPb_mSbTe_{m+2}$ System for Thermoelectric Applications*
Poster Presenter: Mr. Tyler Slade, Northwestern University
Co-Authors: Jann Grovogui, Shiqiang Hao, Christopher Wolverton, Vinayak Dravid, Mercuri G. Kanatzidis
- P216** *Comparison of Lattice Thermal Conductivity for Different Rattler Filled p-type Skutterudite with Nanostructure*
Poster Presenter: Mr. Geonsik Son, Korea University of Technology and Education
Co-Authors: Soon-Mok Choi, Byeong Geun Kim
- P217** *Tuning the Thermoelectric Properties of $Yb_{14}MgSb_{11}$*
Poster Presenter: Dr. Kurt Star, Jet Propulsion Laboratory/California Institute of Technology
Co-Authors: Michell Aranda, Kathleen Lee, Sabah Bux, Jean-Pierre Fleurial
- P218** *Thermoelectric Properties of Te Free $Bi_{2-x}In_xSe_3$ Solid Solution*
Poster Presenter: Dr. Xianli Su, Northwestern University
Co-Authors: Gangjian Tan, Xinfeng Tang, Mercuri G. Kanatzidis
- P219** *Quasi-Particle First Principle Calculation of Energy Bands and Carrier Densities in Distorted Mg_2Si*
Poster Presenter: Dr. Hiroharu Sugawara, Tokyo Metropolitan University
Co-Author: Ayumi Inaba
- P220** *Tetrahedrite $Cu_{11.5}Ni_{0.5}Sb_4S_{12.7}$ with Enhanced Thermoelectric Performance by Nb_2O_5 Nanoparticle Dispersions*
Poster Presenter: Mr. Fu-Hua Sun, Tsinghua University
Co-Author: Jing-Feng Li
- P221** *Thermoelectric Properties of Si/WSi_2 Nanocomposite Prepared by Melt-Spinning Technique*
Poster Presenter: Ms. Yining Sun, Osaka University
Co-Authors: Yuji Ohishi, Hiroaki Muta, Ken Kurosaki, Shinsuke Yamanaka



- P222** *Design of Electrode by Microstructure and Interface Resistance for Sintered Silicon Clathrate*
Poster Presenter: Mr. Jun Tadokoro, Furukawa Electric Co., LTD.
Co-Authors: Daisuke Kikuchi, Kazutomi Miyoshi, Koji Fujimura, Tomohiko Mori, Hideo Nishikubo, Tatsuhiko Eguchi, Kyota Susai, Sadahiro Kato
- P223** *Carrier Type Control and Thermoelectric Properties of Cab_6 Synthesized by Molten Salt Method*
Poster Presenter: Dr. Masatoshi Takeda, Nagaoka University of Technology
Co-Author: Hironobu Kuribayashi
- P224** *All-in-One Thermoelectric Materials: $PbTe-SrTe$ with High Figure of Merit*
Poster Presenter: Dr. Gangjian Tan, Northwestern University
- P225** *Synthesis of p-type SnS From Nanoparticles to Bulk Materials with Enhanced Thermoelectric Performance*
Poster Presenter: Mr. Huaichao Tang, Tsinghua University
Co-Author: Jing-Feng Li
- P226** *Germanium-Isotope-Driven Distortion and Disorder in Clathrate Framework*
Poster Presenter: Prof. Jun Tang, Sichuan University
Co-Author: Zhengshang Wang
- P227** *Phase Impurity Control in $TiNiSn$ Half-Heuslers by Phase Boundary Mapping and Impact on Thermoelectric Performance*
Poster Presenter: Dr. Yinglu Tang, Empa
Co-Authors: Xiaoshuang Li, Lukas Martin, Toni Ivas, Christian Leinenbach, G. Jeffrey Snyder, Corsin Battaglia
- P228** *Thermoelectric Properties of Ytterbium-Based Silicide*
Poster Presenter: Mr. Sora-at Tanusilp, Osaka University
Co-Authors: Ken Kurosaki, Akinori Nishide, Jun Haykawa, Yuji Ohishi, Hiroaki Muta, Shinsuke Yamanaka
- P229** *Thermoelectric Properties of Spark Plasma Sintered p-type $SiGe - CrSi_2$ Nanocomposites*
Poster Presenter: Mr. Andrei Usenko, National University of Science and Technology "MISIS"
Co-Authors: Dmitry Moskovskikh, Mikhail Gorshenkov, Vladimir Khovaylo
- P230** *Thermopower Enhancement In Bismuth Antimony Nanowire Composites*
Poster Presenter: Mr. Koen Vandaele, The Ohio State University
Co-Authors: Michael Adams, Bin He, Pascal Van Der Voort, Klaartje De Buysser, Joseph Heremans

- P231** *Rapid Preparation of $\text{In}_x\text{Co}_4\text{Sb}_{12}$ by Conventional Induction Melting*
Poster Presenter: **Mr. Andrey Voronin, National University of Science and Technology "MISIS"**
Co-Authors: Timofei Korolkov, Mikhail Gorshenkov, Dmitry Moskovskikh, Mark Zheleznyi, Andrei Novitskii, Vladimir Khovaylo
- P232** *A Straightforward Chemical Precipitation Method to Prepare High Performance Copper Sulfide and Tin Sulfide Thermoelectric Materials*
Poster Presenter: **Prof. Chao Wang, Clean Energy Materials and Engineering Center**
- P233** *Thermoelectric Performance of Tetrahedrite Synthesized by a Modified Polyol Process*
Poster Presenter: **Mr. Daniel Weller, Michigan State University**
Co-Authors: Daniel L. Stevens, Grace E. Kunkel, Andrew M. Ochs, Cameron F. Holder, Mary E. Anderson, Donald T. Morelli
- P234** *Effect of Sintering Temperature on the Microstructure and Thermoelectric Properties of Nano-Structured $\text{TiN}/\text{Co}_4\text{Sb}_{11.5}\text{Te}_{0.5}$ Composites*
Poster Presenter: **Dr. Pengfei Wen, Wuhan University of Technology**
Co-Authors: Houjiang Yang, Bo Duan, Jialiang Li, Yue Yu, Junchao Li, Hongtao Wang, Pengcheng Zhai
- P235** *Actinide Based Thermoelectrics – Standing Up a Facility to Process Depleted Uranium into Thermoelectric Materials*
Poster Presenter: **Dr. Christofer Whiting, University of Dayton**
Co-Authors: Trinh Vo, Sabah Bux, Dean A. Cheikh
- P236** *Keeping the Phase! Thermoelectric Properties of Metastable Cubic Phase $\text{Ge}_{19}\text{Sb}_{22}\text{Te}_{22}$*
Poster Presenter: **Dr. Kuei-Kuan Wu, Institute of Atomic and Molecular Sciences, Academia Sinica**
Co-Authors: Kuei-Hsien Chen, Li-Chyong Chen, Deniz Wong
- P237** *The Effects of Ge Doping on Thermoelectric Performance of p-type Polycrystalline SnSe*
Poster Presenter: **Mr. Tessera Alemneh Wubieneh, Institute of Physics, Academia Sinica**
Co-Authors: Szu-Yuan Chen, Yang-Yuan Chen
- P238** *Synergistic Effect by Na Doping and S Substitution to High Thermoelectric Performance of p-type MnTe*
Poster Presenter: **Mr. Jiwu Xin, Huazhong University of Science and Technology**
Co-Authors: Yangyang Ren, Junyou Yang, Qinghui Jiang, Dan Zhang, Zhiwei Zhou, Xin Li, Xu He
- P239** *Studying the Thermoelectric Properties of Polycrystal Organic-Inorganic Lead Halide Perovskite Thin Film by using Photoexcitation-Generated Excited States*
Poster Presenter: **Mr. Yan Xiong, Huazhong University of Science and Technology**
Co-Authors: Feng Gao, Yuchun Liu, Ping Wu, Ling Xu



- P240** *Si Phononic Crystal Membrane with $ZT = 0.1$ at 295 K*
Poster Presenter: **Mr. Ryoto Yanagisawa, The University of Tokyo**
Co-Authors: Naohito Tsujii, Takao Mori, Masahiro Nomura
- P241** *Simultaneous Regulation of Electrical and Thermal Transport Properties in CuInTe_2 by Directly Incorporating Excess ZnX (X=S, Se)*
Poster Presenter: **Prof. Junyou Yang, Huazhong University of Science and Technology**
Co-Authors: Yubo Luo, Qinghui Jiang, Weixin Li, Dan Zhang, Zhiwei Zhou, Yudong Cheng, Yangyang Ren, Xu He, Xin Li
- P242** *High Thermoelectric Performance of W-Doped SnTe by Synergistically Optimized Electrical and Thermal Transport Properties*
Poster Presenter: **Prof. Junyou Yang, Huazhong University of Science and Technology**
Co-Author: Zhiwei Zhou
- P243** *Self-Inhibited Polymerization of Micron-Thick PEDOT Thermoelectric Films with High Electrical Conductivity*
Poster Presenter: **Prof. Qin Yao, Shanghai Institute of Ceramics, Chinese Academy of Sciences**
Co-Authors: Wei Shi, Sanyin Qu, Hongyi Chen, Lidong Chen
- P244** *Highly Enhanced Thermoelectric Material in the Power Factor and Decrease in the Thermal Conductivity of Cu_2S By Se Doping*
Poster Presenter: **Dr. Yao Yao, University of Science and Technology Beijing**
Co-Authors: Bo-Ping Zhang, Jun Pei, Yao-Chun Liu
- P245** *Enhancing the Figure of Merit of High-Performance $\text{Mg}_3\text{Sb}_{1.8}\text{Bi}_{0.2}$ Thermoelectric Materials*
Poster Presenter: **Mr. Guanting Yu, Zhejiang University**
- P246** *Enhancing Thermoelectric Performance of n-type PbSe by Se Vacancies*
Poster Presenter: **Dr. Jiye Zhang, Shanghai University**
Co-Authors: Yefeng Liu, Li You, Chenyang Wang, Jiong Yang, Kai Guo, Jun Luo, Wenqing Zhang
- P247** *Improved Thermoelectric Quality Factor and Performance in $\text{Cu}_{2-y}\text{Se}_{0.5}\text{S}_{0.5}$ through Synergistically Reducing Thermal Conductivity and Increasing Electrical Transports*
Poster Presenter: **Mr. Kunpeng Zhao, Shanghai Institute of Ceramics, Chinese Academy of Science**
- P248** *Preparation and Thermoelectric Property Optimization of Co Doped Zn_4Sb_3 Bulk Material*
Poster Presenter: **Dr. Wenwen Zheng, Wuhan Institute of Technology**
Co-Authors: Peng Bi, Jing Shi, Rui Xiong

- P249** *Designing High-Performance $\text{Bi}_{2-x}\text{Te}_{2+y}\text{Se}_{0.3}$ -Based Transverse Thermoelectric Materials*
Poster Presenter: **Mr. Hongyu Zhou, Wuhan University of Technology**
Co-Authors: Wenyu Zhao, Xin Mu, Cuncheng Li, Shifang Ma, Ping Wei, Wanting Zhu, Xiaolei Nie, Qingjie Zhang
- P250** *Thermoelectric Transport of Cu Doped Paracostibite CoSbS*
Poster Presenter: **Prof. Xiaoyuan Zhou, Chongqing University**
- P251** *Multiple Effects of Bi Doping in Enhancing the Thermoelectric Properties of SnTe*
Poster Presenter: **Mr. Zhiwei Zhou, Huazhong University of Science and Technology**
Co-Author: Junyou Yang
- P252** *Thermoelectric Property Enhancement in Bi Substituted Half-Heusler Alloy $\text{ZrCoSb}_{1-x}\text{Bi}_x\text{Sn}_z$*
Poster Presenter: **Mr. Hangtian Zhu, University of Houston**

THERMOELECTRIC MATERIALS & MODELING - NOVEL PROCESSING

- P253** *Grain Boundary Engineering of Bulk Polycrystalline Bismuth Telluride through Uniaxial Pressing and Annealing: The Effects of Processing Parameters on Texture and Thermoelectric Performance*
Poster Presenter: **Dr. Matthew M. Barry, University of Pittsburgh**
Co-Authors: Cain J. Hung, Jonathon Kim, Louis B. Kish, Pawel Nowakoski, Calixto I. Garica, Minking K. Chyu
- P254** *Picosecond Pulsed Laser Deposition of Bi_2Te_3 Thermoelectric Films*
Poster Presenter: **Mr. Christopher Boggs, North Carolina State University**
Co-Authors: Afsaneh Rabiei, Daryoosh Vashaee
- P255** *Thermoelectric Performance of CuFeS_{2+2x} Composites Prepared by Rapid Thermal Explosion*
Poster Presenter: **Mr. Tiezhong Hu, Wuhan University of Technology**
- P256** *High Throughput Experimental Technologies for Novel Thermoelectric Alloy Research*
Poster Presenter: **Mr. Andy Huang, MTI Corporation**
Co-Author: Xiaoping Jiang
- P257** *FAST/SPS Sintering of Thermoelectric Materials such as BiCuSeO*
Poster Presenter: **Mr. Jens Huber, Dr. Fritsch Powder Shaping Technologies**
Co-Authors: Marco Frey, Harald Hillebrecht
- P258** *Tuning of Thermoelectric Properties of Polythiophenes by their Chemical Structures and Doping Levels*
Poster Presenter: **Dr. Ichiro Imae, Hiroshima University**
Co-Authors: Takashi Koumoto, Ryosuke Akazawa, Yutaka Harima
- P259** *Fabrication and Characterization of Fiberglass Assisted Thermoelectric Power Generators using BiTe Based Materials*
Poster Presenter: **Dr. Giri Joshi, Nanohmics, Inc.**
Co-Authors: Steve Savoy, Josh Ruedin, Leslie Wood, Kyle Hoover, Sebastian Liska, Dan Mitchell, Mike McAleer



- P260** *Thermoelectric Properties of Cu-Doped $\text{Bi}_{0.4}\text{Sb}_{1.6}\text{Te}_3$ Prepared by Hot Extrusion*
Poster Presenter: **Mr. Woo-Jin Jung, Korea National University of Transportation**
Co-Authors: Il-Ho Kim
- P261** *Thermoelectric Properties of Iodine-Doped $\text{Bi}_{2-x}\text{Sb}_x\text{Te}_{3-y}\text{Se}_y$ Prepared by Encapsulated Melting and Hot Pressing*
Poster Presenter: **Mr. Woo-Jin Jung, Korea National University of Transportation**
Co-Authors: Il-Ho Kim, Hyeok-Jin Kim
- P262** *Effects of Bi Substitution on the Low Temperature Thermoelectric Properties of Metastable Cubic $\text{Ge}_2\text{Sb}_{2-x}\text{Bi}_x\text{Te}_5$ Bulk Material*
Poster Presenter: **Mr. Yuki Kagimoto, Osaka Prefecture University**
Co-Author: Atsuko Kosuga
- P263** *Thermoelectric Properties for a Suspended Micro-Ribbon of Quasi-One-Dimensional TiS_3*
Poster Presenter: **Dr. Mikio Koyano, Japan Advanced Institute of Science and Technology**
Co-Authors: Tasuku Sakuma, Shunsuke Nishino, Masanobu Miyata
- P264** *High Efficient Thermoelectric Electrodeposits via Embedded Nanostructures*
Poster Presenter: **Dr. Jae-Hong Lim, Korea Institute of Materials Science**
Co-Authors: Jiwon Kim, Nosang V. Myung
- P265** *Ultra-Low Thermal Conductivity in Nanobulk Bismuth Telluride Alloys Prepared by Ultrasound Milling*
Poster Presenter: **Dr. Lourdes Márquez-García, Universitat Jaume I**
Co-Authors: Ángel Fabian Mijanjos, Jorge García-Cañadas, Jesús Prado-Gonjal, Anthony V. Powell, Gao Min
- P266** *Phase Boundary Mapping: A Simple but Critical Concept to Fully Explore the Accessible Equilibria of a Material*
Poster Presenter: **Mr. Saneyuki Ohno, California Institute of Technology**
Co-Authors: Stephen Kang, Shashwat Anand, Kazuki Imasato, Max Wood, G. Jeffrey Snyder
- P267** *BiSbTe Thermoelectric Nanocomposite via Bottom-Up Process & Device Fabrication*
Poster Presenter: **Mr. Sung Hoon Park, MI-SEOJIN, Inc.**
Co-Authors: Hang Cheol Choi, Seo Young Kim
- P268** *Hierarchical Structuring of $\text{Mg}_2\text{Si}_{1-x}\text{Sn}_x$ Alloys for Thermoelectric Applications*
Poster Presenter: **Mr. Andrey Sizov, Chalmers University of Technology**
Co-Authors: Hazel Reardon, Bo Brummerstedt Iversen, Paul Erhart, Anders Palmqvist
- P269** *Fabrication and Enhanced Thermoelectric Properties of Bi-Sb-Te with 3D Periodic Boundary*
Poster Presenter: **Dr. Jae Yong Song, Korea Research Institute of Standards and Science**
Co-Authors: Seok-kyoon Hong, Hosun Shin, Sun Hwa Park, Seokwoo Jeon

- P270** *High Thermoelectric Performance of $AgSb_{1-x}Pb_xSe_2$ prepared by Ultra-Fast Non-Equilibrium Synthesis*
Poster Presenter: **Mr. Xing Tan, Tsinghua University**
Co-Authors: Jin-Le Lan, Yao-Chun Liu, Guang-Kun Ren, Rui Liu, Yuanhua Lin, Ce-Wen Nan
- P271** *High Performance Screen-Printed Flexible Thermoelectric Films by Liquid Phase Sintering*
Poster Presenter: **Mr. Tony Varghese, Boise State University**
Co-Authors: Joseph Richardson, Courtney Hollar, Nicholas Kempf, David Estrada, Yanliang Zhang
- P272** *Microwave Field Decrystallization of Thermoelectric Materials*
Poster Presenter: **Dr. Daryoosh Vashaee, North Carolina State University**
Co-Authors: Michael Hall, Abhishek Malhotra, Amin Nozari
- P273** *Fabrication of Cation-Substituted $Yb_{14}MgSb_{11}$ by Powder Metallurgy and Spark Plasma Sintering*
Poster Presenter: **Ms. Elizabeth Wille, University of California, Davis**
Co-Authors: Navtej S. Grewal, Susan Kauzlarich
- P274** *Nanoporous $PbSe-SiO_2$ Thermoelectric Composites: Electrical and Thermal Conductivity Study*
Poster Presenter: **Mr. Chao-Feng Wu, Tsinghua University**
Co-Authors: Tian-Ran Wei, Jing-Feng Li
- P275** *Thermal Studies of a Twisted Si Grain Boundary using Film-Wafer Bonding*
Poster Presenter: **Mr. Dongchao Xu, University of Arizona**
Co-Authors: Qing Hao, Bao Xiao
- P276** *Effects of High-Pressure High-Temperature on the Phase Structure and Band Gap of PbSe*
Poster Presenter: **Mr. Dongwang Yang, Wuhan University of Technology**
Co-Authors: Bo Chen, Yi Li, Zhenya Sunj
- P277** *Mechanochemical Synthesis of High Thermoelectric Performance Bulk Cu_xX ($X=S, Se$) Materials*
Poster Presenter: **Mr. Dongwang Yang, Wuhan University of Technology**
- P278** *Engineering the Thermoelectric Transport in Half-Heusler Materials through a Bottom-Up Nanostructure Synthesis*
Poster Presenter: **Dr. Huaizhou Zhao, Institute of Physics, Chinese Academy of Sciences**
Co-Authors: Binglei Cao, Shanming Li, Ning Liu, Jiawen Shen, Shan Li, Jikang Jian, Lin Gu, Yanzhong Pei, G Jeffrey Snyder, Zhifeng Ren, Xiaolong Chen

THERMOELECTRIC MATERIALS & MODELING - TE TRANSPORT (MICROSCALE AND NANOSCALE)

- P279** *Reduced Thermal Conductivity of Thermoelectric Layers Grown on Nano-Patterned Silicon Substrates*
Poster Presenter: **Ms. Xin Chen, Old Dominion University**
Co-Authors: Pengtao Lin, Kai Zhang, Helmut Baumgart



- P280** *Thermoelectrical Properties Investigation of Polycrystalline and Highly Ordered Metal-Organic Framework Thin Films*
Poster Presenter: **Ms. Xin Chen, Old Dominion University**
Co-Authors: Zhengbang Wang, Zeinab Mohammed Hassan, Pengtao Lin, Kai Zhang, Helmut Baumgart, Engelbert Redel
- P281** *Effect of Electron-Phonon Interaction on Lattice Thermal Conductivity of Nanostructured Thermoelectric Materials*
Poster Presenter: **Mr. Bo Fu, Xi'an Jiaotong University**
Co-Authors: Yifei Li, Guihua Tang
- P282** *Modeling of Transport Properties in Bulk Silicon Thermoelectric Materials With High ZT*
Poster Presenter: **Mr. Seyed Aria Hosseini, University of California, Riverside**
Co-Authors: Jackson R. Harter, Devin Coleman, Todd S. Palmer, Lorenzo Mangolini, P. Alex Greaney
- P283** *Improving the Thermoelectric Power Factor of Semiconductor Quantum Structures*
Poster Presenter: **Mr. Adithya Kommini, University of Massachusetts - Amherst**
Co-Author: Zlatan Aksamija
- P284** *Towards a Higher Power Factor in 2D Materials: Role of Inelastic Scattering Mechanisms*
Poster Presenter: **Mr. Adithya Kommini, University of Massachusetts - Amherst**
Co-Author: Zlatan Aksamija
- P285** *Harnessing Intervalley Scattering for Low Lorenz Number Thermoelectrics*
Poster Presenter: **Mr. Robert McKinney, Colorado School of Mines, NREL**
Co-Authors: Prashun Gorai, Vladan Stevanovic, Eric Toberer
- P286** *Lattice Defects in Mg_2Sn Studied by Band Structure Calculation and Single-Crystal X-Ray Diffraction*
Poster Presenter: **Mr. Wataru Saito, Tohoku university**
Co-Authors: Kei Hayashi, Masataka Kubouchi, Yuzuru Miyazaki
- P287** *Ab-Initio Study of the Screening Effect of Free Carriers on the Electron Transport in Lead Telluride*
Poster Presenter: **Mr. Qichen Song, Massachusetts Institute of Technology**
- P288** *Combined First Principles and Finite Elements Thermal Modeling of Thermoelectric Devices*
Poster Presenter: **Mr. Pol Torres, Universitat Autònoma de Barcelona**
Co-Authors: Amirkoushyar Ziabari, Àlvar Torelló, Javier Bafaluy, Xavier Cartoixà, Ali Shakouri, Francesc Xavier Alvarez
- P289** *Effect of Band Shape on the Lorenz Number and Thermoelectric Properties*
Poster Presenter: **Dr. Hidetomo Usui, Osaka University**
Co-Author: Kazuhiko Kuroki

P290 *Electron and Phonon Monte Carlo Simulations of a Thermoelectric Si Films with Nanosized Constrictions to Suppress Phonon Transport*

Poster Presenter: **Mr. Yue Xiao, University of Arizona**

Co-Authors: Qing Hao, Hongbo Zhao

P291 *Modeling of Quantum-Size Effects in Thermoelectric Nanostructures IV-VI*

Poster Presenter: **Dr. Ihor Yurchyshyn, Academy of Modern Technologies**

Co-Authors: V.Yu. Potyak, V.V. Skrypnyk

THERMOELECTRIC MATERIALS & MODELING - FIRST PRINCIPLES MODELING

P292 *Nickel and Tungsten Modified Fe₂VAI Full-Heusler Systems: A DFT Guided Experimental Study*

Poster Presenter: **Prof. Ernst Bauer, Technische Universität Wien**

Co-Authors: I. Knapp, B. Budinska, P. Fuchs, P. Heinrich, S. Khmelevskiy, R. Moser, R. Podloucky, P. Rogl, P. Prenninger

P293 *Quasi-Particle Corrections in the Electrical Conductivity of WSe₂ Monolayer*

Poster Presenter: **Dr. Sitangshu Bhattacharya, Indian Institute of Information Technology-Allahabad**

Co-Author: Anindya Bose

P294 *Thermoelectric Properties of 2D Layered TiSe₂ from First-Principles*

Poster Presenter: **Prof. Keivan Esfarjani, University of Virginia**

Co-Authors: Safoura Nayebzadeghi, Danielle Hamann, Zhen Li, David Johnson, Steven Cronin, Mona Zebarjadi

P295 *Defect Chemistry of Zintl Pnictides*

Poster Presenter: **Dr. Prashun Gorai, Colorado School of Mines, NREL**

Co-Authors: Brenden Ortiz, Eric Toberer, Vladan Stevanovic

P296 *First-Principles Calculation of Substitutional and Interstitial Impurity Doping Predictions for p-type Thermoelectric Mg₂Si*

Poster Presenter: **Dr. Naomi Hirayama, Osaka University**

Co-Authors: Tsutomu Iida, Keishi Nishio, Yasuo Kogo, Kenji Takarabe, Noriaki Hamada

P297 *First Principles Calculations of Electronic Structure and Transport Properties of Re-Doped Bismuth Telluride*

Poster Presenter: **Ms. Paulina Kamińska, Warsaw University of Technology**

Co-Authors: Piotr Śpiewak, Wojciech Swieskowski, Krzysztof Jan Kurzydłowski

P298 *Seebeck Coefficient of Lead Telluride: Supercell Model of Na and TI Doping*

Poster Presenter: **Dr. Pavel Korotaev, Dukhov Research Institute for Automatics**

Co-Authors: Andrey Mukhanov, Aleksey Yanilkin

P299 *Thermoelectric Properties of Heavily-Doped Fe₂YZ Full-Heusler Compounds*

Poster Presenter: **Mr. Sébastien Lemal, University of Liège**

Co-Authors: Fabio Ricci, Matthieu J. Verstraete, Philippe Ghosez



P300 *High-Throughput Screening of Sulfide Thermoelectric Materials using Electron Transport Calculation with OpenMX and BoltzTraP*

Poster Presenter: **Mr. Masanobu Miyata, Japan Advanced Institute of Science and Technology**

Co-Authors: Taisuke Ozaki, Tsunehiro Takeuchi, Shunsuke Nishino, Manabu Inukai, Mikio Koyano

P301 *Doping Induced Enhanced Density of States in Bismuth Telluride*

Poster Presenter: **Ms. Namita Narendra, North Carolina State University**

Co-Authors: Payam Norouzzadeh, Daryoosh Vashaee, Ki Wook Kim

P302 *Exchange-Correlation Functional and Potential Influences on Thermoelectric Transport in d⁰ Perovskite Oxides*

Poster Presenter: **Dr. Isao Ohkubo, National Institute for Materials Science**

Co-Author: Takao Mori

P303 *About the Electronic Properties of Fe₂VAI and Related Thermoelectric Compounds*

Poster Presenter: **Dr. Fabio Ricci, University of Liège**

Co-Authors: Sébastien Lemal, Matthieu J. Verstraete, Philippe Ghosez

P304 *A Simple Model of Guest Atom Rattling in Type I Silicon Clathrates*

Poster Presenter: **Dr. Elvis Shoko, King Abdullah University of Science & Technology**

Co-Author: U. Schwingenschloegl

P305 *Thermoelectric Properties of Chalcostibite (CuSbS₂) Structure-Type Compounds under Hydrostatic Pressure*

Poster Presenter: **Dr. Elvis Shoko, King Abdullah University of Science & Technology**

Co-Authors: N. Alsaleh, U. Schwingenschloegl

P306 *The Next Generation of Transparent and Efficient Thermoelectric Semiconducting Material*

Poster Presenter: **Dr. Yogesh Sonvane, Sardar Vallabhbhai National Institute of Technology, Surat**

Co-Authors: Deobrat Singh, Shivam Kansara, Sanjeev K. Gupta

P307 *Electronic Structure and Transport Properties of Doped Lead Telluride from Hybrid Functional Calculations Including Spin-Orbit Interaction*

Poster Presenter: **Dr. Piotr Śpiewak, Warsaw University of Technology**

Co-Authors: Paulina Kamińska, Krzysztof Jan Kurzydłowski

P308 *Self-Energy Corrections of Electrical Conductivity in Silicon Nanowire*

Poster Presenter: **Dr. Rekha Verma, Indian Institute of Information Technology Allahabad**

Co-Author: Suchitra Kumari

- P309** *Electronic and Thermoelectric Properties of Zintl 14-1-11 Compounds Computed with DFT+U*
Poster Presenter: **Ms. Trinh Vo, Jet Propulsion Laboratory/California Institute of Technology**
Co-Authors: Paul von Allmen, Sabah Bux, Jean-Pierre Fleurial
- P310** *Defects Study in ANiSn (A=Ti,Zr,Hf) Based half-Heusler Compounds*
Poster Presenter: **Dr. Lili Xi, Shanghai University**
Co-Authors: Hongliang Yang, Jiong Yang, Shan Zheng, Ming Zhang, Wenqing Zhang
- P311** *Anharmonic Interaction between Dislocation and Phonon*
Poster Presenter: **Dr. Ben Xu, Tsinghua University**
Co-Authors: Yandong Sun, Yuanhua Lin, Ming Hu, Yanguang Zhou
- THERMOELECTRIC MATERIALS & MODELING - TE CHARACTERIZATION METHODS**
- P312** *Pb-Doped BiSbTe Nanocomposites with Unity Figure of Merit from 500-600 K*
Poster Presenter: **Mr. Matthias Agne, Northwestern University**
Co-Authors: Biao Xu, Tianli Feng, Thomas C. Chasapis, Xiulin Ruan, Yilong Zhou, Haimei Zheng, Je-Hyeong Bahk, Mercouri G. Kanatzidis, G. Jeffrey Snyder, Yue Wu
- P313** *Vacancy Contributions to the High Temperature Heat Capacity of Thermoelectric Materials*
Poster Presenter: **Mr. Matthias Agne, Northwestern University**
Co-Author: G. Jeffrey Snyder
- P314** *Anisotropy in Thermoelectric Materials*
Poster Presenter: **Mr. Karl Fischer, Aarhus University**
Co-Author: Bo Brummerstedt Iversen
- P315** *Optimization and Full Thermoelectric Characterization of Electrochemical Deposited Bi-Compound Thick Films*
Poster Presenter: **Dr. Javier García, Leibniz-Institute for Solid State and Materials Research**
Co-Authors: Guodong Li, Melanie Mohn, Nicolas Pérez, David Lara-Ramos, Heike Schlörb, Heiko Reith, Gabi Schierning, Kornelius Nielsch
- P316** *Large Power Factor Improvement in a Porous Thermoelectric Material Permeated with a Liquid Electrolyte Containing an Inert Salt*
Poster Presenter: **Dr. Jorge García-Cañadas, Universitat Jaume I**
Co-Authors: Lourdes Márquez-García, Braulio Beltrán-Pitarch, Damian Powell, Gao Min
- P317** *Thermal Conductivity Determination of Bulk Thermoelectric Elements up to 300 °C using Impedance Spectroscopy*
Poster Presenter: **Dr. Jorge García-Cañadas, Universitat Jaume I**
Co-Authors: Braulio Beltrán-Pitarch, Jesús Prado-Gonjal, Anthony V. Powell



- P318** *Thermal and Electrical Conductivity and Conduction Mechanism of Ge₂Sb₂Te₅ Chalcogenide Alloy*
Poster Presenter: **Dr. Rui Lan, Jiangsu University of Science and Technology**
Co-Authors: Rie Endo, Yoshinao Kobayashi, Masahiro Susa, Masashi Kuwahara
- P319** *Detachable Contacts for Simultaneous Thermoelectric Characterization*
Poster Presenter: **Mr. Antoine Micallef, German Aerospace Center (DLR)**
Co-Authors: Christian Stiewe, Gregor Oppitz, Stephan Tiedke, Eckhard Mueller
- P320** *In-Plane and Cross-Plane Thermal Conductivity of Bismuth Telluride Thin Film*
Poster Presenter: **Prof. Koji Miyazaki, Kyushu Institute of Technology**
Co-Authors: Laurent Tranchant, Kou Kuriyama, Tomohide Yabuki
- P322** *Stability and Properties of Calcium Silicide Eco-Friendly Zintl Phases*
Poster Presenter: **Mr. Adrien Moll, Université de Montpellier / ICGM**
Co-Authors: R. Viennois, P. Hermet, A. Haidoux, M. Beaudhain
- P323** *Development of Thermal Conductivity Measurement Method Applicable to Thin Bulk Materials Based on 2ω Method*
Poster Presenter: **Prof. Yoshiaki Nakamura, Osaka University**
Co-Authors: Kosuke Mitarai, Ryo Okuhata, Kentaro Watanabe
- P324** *Development of Accelerated Aging Capabilities for Thermoelectric Materials and Metallic Contacts*
Poster Presenter: **Dr. Karla Reyes-Gil, Sandia National Laboratories**
Co-Authors: Elizabeth Withey, Josh Whaley, Jeff Chames, Josh Sugar, Norman Bartelt
- P325** *Design, Development and Experimental Validation of a Thermal Contact Resistance Test Bench for Thermoelectric Generator Applications*
Poster Presenter: **Dr. Antonio Rodríguez, Public University of Navarre**
Co-Authors: Gurutze Pérez, David Astrain, Alvaro Martinez, Patricia Aranguren, Oscar Herrero
- P326** *Study of Thermoelectric Pallets Bi₂Te₃, Pb₂Te₃ and Bi₂Pb₃ as the Energy Generation Elements in the High Temperature Range*
Poster Presenter: **Dr. Jaspal Singh, Mata Sundri University Girls College**
Co-Author: SS Verma
- P327** *Unravelling Thermoelectric Properties of Bi₂Te₃-Based Thermoelectric Modules by AC Impedance Spectroscopy*
Poster Presenter: **Dr. Chung-Yul Yoo, Korea Institute of Energy Research**
Co-Authors: Younghwan Jin, Yeong Seon Kim, Hana Yoon, Sang Hyun Park

THERMOELECTRIC MATERIALS & MODELING - OTHER RELATED MATERIALS & MODELING

- P329** *Thermal Properties Measurement and Performance of Microporous Insulations for Use in Thermoelectric Modules*
Poster Presenter: **Dr. Tim C. Holgate, Teledyne Energy Systems, Inc.**
Co-Authors: Ying Song, Russell Bennett, Steve Keyser
- P330** *Cumulative Properties vs. Reduced Variables Modeling Approaches for Estimation of Thermoelectric Power Generation Efficiency*
Poster Presenter: **Mr. Thomas Linker, California Polytechnic State University**
Co-Authors: **Matt Beekman**, Glenn S. Lee
- P331** *Effect of Doping on Magnetic Field Dependence of Thermoelectric Properties of Bi-Sb Alloy*
Poster Presenter: **Dr. Masayuki Murata, National Institute of Advanced Industrial Science & Technology**
Co-Author: Atsushi Yamamoto
- P332** *A Heterogeneous Model for Thermoelectricity and Electrical Conduction in Poly (3,4-ethylenedioxythiophene) Polystyrene Sulfonate*
Poster Presenter: **Ms. Manting Qiu, Queen Mary, University of London**
Co-Author: **Mark Baxendale**
- P333** *Frogs' Legs, Thermoelectricity, and Hans Christian Oersted*
Poster Presenter: **Mr. Keith Walsh, Independent**
- P334** *Carrier Scattering Mechanism Analysis Based on Thermoelectric Property Measurement*
Poster Presenter: **Dr. Guiying Xu, University of Science and Technology Beijing**
Co-Authors: Pan Ren, Tie Lin, Xiaofeng Wu, Yanhua Zhang, Sitong Niu, Trevor Bailey, Ctirad Uher
- P335** *Thermoelectric Properties in CoTe_{1+x} (x=0, 0.1739, 0.5, 0.5974) Fabricated by High-Pressure Sintering*
Poster Presenter: **Dr. Guiying Xu, University of Science and Technology Beijing**
Co-Authors: **Jiaxin Di**, Hui-Tao Li, Li-bo Zhang, Junling Gao, Tu Lv, Nianhui Lu, Xiangxiang Liu
- P336** *Thermoelectric Properties in MnTe_{2+x} (x=0,0.03) Fabricated by High-Pressure Sintering*
Poster Presenter: **Dr. Guiying Xu, University of Science and Technology Beijing**
Co-Authors: **Li-Bo Zhang**, Hui-Long Qi, Junling Gao, Jiaxin Di, Tu Lv, Nianhui Lu, Xiangxiang Liu
- P337** *Thermoelectric Property of FeTe_{2+x} Fabricated by High Pressure Sintering Method*
Poster Presenter: **Dr. Guiying Xu, University of Science and Technology Beijing**
Co-Authors: **Xiangxiang Liu**, Hongtao Li, Dongyuan Li, Li-bo Zhang, Jiaxin Di, Nianhui Lu
- P338** *Thermoelectric Property of Ni_{1+x}Te Fabricated by High Pressure Sintering Method*
Poster Presenter: **Dr. Guiying Xu, University of Science and Technology Beijing**
Co-Authors: Hongtao Li, **Nianhui Lu**, Guiying Xu, Zhangjian Zhou, Li-bo Zhang, Xiangxiang Liu, Jiaxin Di, Junling Gao



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A

Abedi, H. | B51, C67, P30
Abernathy, Doug | A48
Ackerly, John | P01
Acosta, Edwin | B60
Adachi, Masahiro | P167, P174
Adams, Michael | C56, P230
Adler, Kenneth | P01
Agne, Matthias | P312, P313
Ahn, Jin Ho | P211
Aixala, L. | B19
Aizawa, Kengo | P90
Akazawa, Ryosuke | P258
Akbarzadeh, A. | P29
Aksamija, Zlatan | P283, P284
Al-Abdulla, A. | C44
Alatas, Ahmet | B9
Albrecht, Manfred | B58b
Alghanmi, Khaled Faisal | P04
Allen, Jeffrey S. | C28
Allothman, Abdulmohsen | P02
Alraeqi, Ahmed Mater | P04
Alsaleh, N. | P305
Alshaikh, Ahmad Abdulrahim | P04
Alshareef, Husam N. | P63
Alvarez, Francesc Xavier | P288
Ameri, Mohammed | B34
Aminorroaya Yamini, Sima | P52
Aminzare, Masoud | B58a
Amsler, Maximilian | P66
An, Hyeunhwan | B48a
Anand, Shashwat | A14, B29, P266
Anderson, Mary E. | P233
Anh Tuan, Duong | A1
Anno, Hiroaki | B7

Anoop, Gopinathan | P141
Antolin, Nicolas | A57
Aoyama, Takashi | P90
Araiz, Miguel | C62
Aranda, Michell | P45, P217
Aranguren, Patricia | C62, P50, P325
Arguilla, Maxx | P115
Asadi, Amin | P03
Asahi, Ryoji | C58a
Asfandiyar, Khan | P67
Askarpour, Vahid | A41
Aslan, Silas | C21
Asta, Mark | A39
Astrain, David | C51, C62, P50, P325
Aswal, D. K. | P75
Attar, Alaa | P04
Aulin, Yaroslav V. | P145
Avery, Azure D. | A68
Aydemir, Umut | A39, B14, P162
Azzouz, K. | B19

B

Back, Song Yi | P68, P86
Baek, Seung-Hyub | P129
Bafaluy, Javier | P288
Baffie, T. | B19
Bahk, Je-Hyeong | P312
Bahrin, Nuriadilia | P31
Bai, Guanghui | P38
Bai, Shengqiang | C30, C38, P64
Bailey, Trevor | P69, P179, P334
Balke, Benjamin | P70
Ballikaya, Sedat | B15
Banerjee, Dipali | P163



Banerjee, Malay | P83
Bang, Semi | B36, P71
Bansal, Dipanshu | A48
Bao, Xinxin | A35
Barbier, Tristan | B22, P72
Barin, L. | C67
Barnett, Scott A. | A65, P162
Barrett, Dashiel | P73
Barry, Matthew M. | C52, C61, P10, P253
Bartelt, Norman | P324
Bartholomé, K. | C19
Bastian, Georg | P05
Basu, Ranita | P75
Bates, Victor | P186
Batista, Nicholas | C16
Battaglia, Corsin | P227
Battiston, S. | B51
Bauer, Ernst | B26, B38, P292
Baumgart, Helmut | P279, P280
Baxendale, Mark | P332
Beaudhuin, M. | B10, P322
Bebawy, Kamal | C8
Beekman, Matt | A63, B6, P330
Beitelschmidt, Michael | C37
Beltrán-Pitarch, Braulio | P316, P317
Ben Salem, Sadok | P05
Bennett, Nick | B60
Bennett, Russell | P329
Berland, Kristian | B72, P109
Bernard-Granger, Guillaume | P169
Berrahal, Mokhtar | B34, P159
Berthebaud, D. | P72
Bhatt, Ranu | P75
Bhattacharya, S. | A34
Bhattacharya, Shovit | P75

Bhattacharya, Sitangshu | P293
Bi, Peng | P248
Blackburn, Jeffrey L. | A68
Blake, Graeme | P74
Blichfeld, Anders Bank | B66
Bobev, Svilen | A36
Bobnar, Matej | A6
Boggs, Christopher | P254
Bohra, Anil | P75
Boisselle, P. | B19
Boldrini, S. | B51, P30
Bonetti, Marco | P200
Boona, Stephen | A55
Borguet, Eric | P145
Boryk, Victor | P76
Bos, Jan-Willem | P74
Bose, Anindya | P293
Botti, S. | B10
Bouyrie, Yohan | A33, P47, P77, P113
Briem, M. | C19
Broberh, Danny | A39
Brown-Shakliee, Harlan | A58
Bruin, Jan | P178
Brutchey, Richard L. | P175
Budinska, B. | P292
Buntham, Suwapitcha | P78
Burkhardt, Ulrich | A6
Burkov, A.T. | P187
Bushkov, Nazar | P79
Bux, Sabah | A46, C11, P22, P45, P81, P91, P93, P94, P118, P142, P217, P309, P235, P328

C

Cabot, Andreu | P120

Cai, Lanlan | P147
Caillat, Thierry | B39, P48, P62
Calvo, Jesús | C7
Campbell, William | C8
Candolfi, Christophe | P122, P144, P203
Cao, Binglei | P278
Cardim De Araújo, Felipe | P26
Carroll, David L. | B50, P97
Carter, Michael | C16
Cartoixà, Xavier | P288
Casalegno, Valentina | C14
Casey, Steven | P05B
Celik, Emrah | C48b
Celik, Erdogan | B56
Cha, J.S. | P184
Cha, Ye-Eun | P80
Chai, Yaw Wang | B46
Chames, Jeff | P324
Chamoire, Audrey | C48a, P160
Chanakian, Sevan | C11, P22, P22B, P45
Chang, Cheng | A1
Chang, Chung Chieh | P85
Chang, Sun-Tang | B58a
Chao, Yimin | A56
Chasapis, Thomas C. | P312
Chattopadhyay, Kamanio | B45
Chaudhary, Deepti | P135
Cheikh, Dean A. | C11, P81, P118, P235
Chen, Bo | P276
Chen, Cheng-Lung | P37, P85
Chen, Dongbo | P65
Chen, Gang | A12, A13, B30, B35, P38, P146
Chen, Hongyi | P243
Chen, Huanxin | P55

Chen, Kuei-Hsien | B58a, P83, P194, P208, P236
Chen, L. | P190
Chen, Li-Chyong | B58a, P83, P194, P208, P236
Chen, Lidong | A71, B14, C30, C38, P64, P243
Chen, Long-Qing | A47
Chen, Ning | B32
Chen, Szu-Yuan | P237
Chen, Tianle | C18
Chen, Wei | A39, P84, P149
Chen, Xiaolong | P278
Chen, Xin | P55, P279, P280
Chen, Xinle | C49, P39
Chen, Yang-Yuan | P37, P85, P237
Chen, Yi-Ray | C34
Chen, Yuexing | A4, P99
Chen, Zhiwei | P84, P149
Chen, Zijian | P65
Cheng, Huiming | A69
Cheng, Yudong | P241
Chi, Ike | C11, C13, P62
Chichkov, Nikolai | P05
Chien, Chia Hua | P85
Chmielewski, Marcin | B31b
Chmielowski, Radoslaw | A34
Cho, Byung Jin | C20, P15
Cho, Hyunyoung | P68, P86
Cho, Jun-Young | P87
Cho, Sunglae | A1, P88
Choi, Byoung-Joon | P44, P54, P207
Choi, Hang Cheol | P267
Choi, Hyeongdo | P06
Choi, Hyunwoo | C12
Choi, Jaeyoo | P141



Choi, Soon-Mok | P44, P54, P207, P210, P216
Choi, Woongjin | P89
Chonan, Yasunori | P90
Chong, XiaoYu | C11
Chou, Fang Cheng | P194
Chrzon, Thomas | P05
Chu, Zhong | P119
Chung, In | P49
Chuqi, Su | P35
Chyu, Minking K. | P253
Ciupinski, Lukasz | B31b
Cleary, Martin | C66
Clifford, Corey E. | C52, C61, P10
Coduri, M. | B51
Coleman, Devin | P91, P282
Colombo, Luciano | A52
Colonna, Jean-Philippe | P170
Compton, Bobby | C8
Cooley, Joya | A19
Coutant, Zachary | C8
Crandall, Joseph | C16
Crawford, Caitlin | A38, B37
Cronin, Steven | P294
Cuenat, Alexander | C38
Cultrara, Nicholas | P115

D

Dabral, Keshav | P92
Danaei, Roozbeh | C22
Dasgupta, T. | C45
Dasgupta, Titas | B16, P106
Date, A. | P29
Datta, Anuja | P25
Dauscher, Anne | P122, P144, P203
de Boor, Johannes | B16, B17, P101

De Buysser, Klaartje | P230
De Vault, C. | B19
Debord, R. | B10
Delaire, Olivier | A48
den Heijer, Maarten | C35
Deng, Yadong | C26, P07, P08, P32
Derakhshan, Shahab | P93
DeSario, Douglas | P160
Dettori, Riccardo | A52
Devlin, Kasey | P94
Dharmaiah, Peyala | P95
Di, Jiabin | P335, P336, P337, P338
Diaz de Garayo, Sergio | C51, C70
Dickey, Michael | C9
Dikin, Dmitriy A. | P145
Dimaggio, Elisabetta | B18
Diógenes, Sâmia Senna | P26
Dolyniuk, Juli-Anna | B8
Donadio, Davide | A19
Dong, Jin-Feng | B20, P67, P96
Dong, Wenbin | P32
Dravid, Vinayak | A8, B43b, P202, P215
Drymiotis, Fivos | B39, C11, C63, P328
Du, Yong | P128
Duan, Bo | B3, B35, P38, P146, P234
Dun, Chaochao | B50, P97
Dunham, Marc T. | A52
Dunn, Bruce | P81, P118
Durakiewicz, T. | A20
Durka, Michael J. | C61
Dutra, José Carlos Charamba | P09, P26, P27
Duvjir, Ganbat | A1, P88

E

Eaksuwanchai, Preeyakarn | P98

- Eguchi, Mao | P114
Eguchi, Tatsuhiko | P222
Ehlers, Georg | A48
Ekino, Satoshi | P174
El Desouky, Ahmed | C16
Enami, Hiroyuki | P14
Endo, Rie | P318
Eom, Yoomin | C10, C33
Erhart, Paul | P268
Esfarjani, Keivan | P294
Estrada, David | P271
Eun Lee, Ji | P88, P140
Eyert, V. | P72
- F**
- Faghaninia, Alireza | A45
Fahy, Stephen | P205
Failamani, Fainan | B38
Famengo, A. | B51
Fanciulli, C. | B51, C67, P30
Farahi, Nader | B17
Faucherand, Pascal | P170
Felipe de Freitas Almeida, Peterson | P26
Feng, Dan | P99
Feng, Tianli | P312
Ferguson, Andrew | A68
Ferrario, A. | B51
Fiameni, S. | B51
Finstad, Terje G. | B72
Firdosy, Samad | A47, B39, B67, C11, C43, C63, P45, P56, P62, P100, P328
Fischer, Karl | P314
Fischer, Yuri | P09, P27
Fleurial, Jean-Pierre | A25, A46, A47, B39, B67, C11, C43, C63, P45, P56, P62, P81, P91, P100, P118, P142, P217, P309, P328
- Fradeneck, Austen D. | C61
Franz, Alexandra | P101
Freeman, Rose | C8
Frésard, R. | P72
Fréty, N. | B10
Frey, Marco | P257
Fritsch, Katharina | A67, B9, P101
Fu, Bo | P281
Fu, Liangwei | P102
Fuc, Pawel | P36
Fuchs, P. | P292
Fujii, Susumu | B22, B71
Fujii, Yosuke | P103
Fujimura, Koji | P222
Fujita, Takeshi | P197
Fukatani, Naoto | P173
Fulton, Laura | P10
Funahashi, Ryoji | A60, B22, C15
Furukimi, Osamu | P180
- G**
- Gall, André | C21
Ganghopadhyay, Shrubu | A19
Gao, Duanfeng | A65
Gao, Feng | A65, P239
Gao, Junling | P335, P336, P338
García, Javier | C41, P315
García-Cañadas, Jorge | P265, P316, P317
Garg, Anupam | A51
Garica, Calixto I. | P253
Gauthier, Nicolas | P199
Gazder, Azdiar | P52
Ge, Zhen-Hua | P99
Geczi, E. | C19



- Gelbstein, Yaniv | C2, P161
Geng, Huiyuan | B33
Gherghishan, I. | P172
Ghodke, Swapnil | P104
Ghosal, Partha | C68b
Ghosez, Philippe | P299, P303
Ghoshal, Ankita | C54
Gibbs, Zachary | A39
Ginley, David | C59
Ginting, Dianta | P105
Giordano, V. | B10
Girard, Steven | B47
Glatzmaier, Greg | C59
Glew, Charles | C48a, P160
Glick, James | C65
Gnade, Bruce E. | P63
Gofryk, Krzysztof | A20
Gogna, Pawan | C63, P62, P328
Göhler, Tim | C7
Goldberger, Joshua | P115
Goo, Gi Won | A72
Goodson, Kenneth E. | A52
Gopalan, R. | C45
Gorai, Prashun | A15, A38, A40, A65, B37, P162, P285, P295
Gorshenkov, Mikhail | P131, P229, P231
Goto, Takashi | P78
Gou, Xiaolong | P28
Gould, Isaac E. | A68
Goyal, Anuj | A38, A65, P162
Goyal, Gagan Kumar | P106
Graser, Jake | P107
Greaney, Alex | P91, P282
Greibenkemper, Jason | P94
Grewal, Navtej S. | P273
- Grin, Yuri | A6
Griveau, J-C. | A20
Groitl, Felix | A67
Grovgoui, Jann | B43b, P215
Grundeen, Gordon | P108
Grytsiva, Andriy | B26, B38
Gu, Lin | P154, P278
Guillot, Sarah L. | A68
Guilmeau, E. | P72
Gunji, Sakiko | A44
Gunnæs, Anette E. | P109
Guo, Chuanfei | B2
Guo, Haifeng | P189
Guo, Kai | P154, P246
Guo, Yale | P11, P19
Gupta, Rahul | B40
Gupta, Sanjeev K. | P213, P306
Gurevich, Yuri | C5
Gürth, M. | B26
Guzik, Matylda | B72, P109
Guzmán Cuevas, Amador | C58b
- H**
- Habicht, Klaus | A67, B9, P101
Hafsi, Zoulikha | P159
Hai, Nguyen Thi Minh | A1
Haidoux, A. | B10, P322
Haji, Muhammad R. | P02
Hakeem, D.A. | P184
Hall, Michael | C8, P272
Hamada, Noriaki | P296
Hamann, Danielle | P294
Hamley, John | A25
Han, Jin Koo | P110

Han, Matthew | A19
 Han, Xiaodong | P153
 Hanus, Riley | A51
 Hao, Qing | P111, P275, P290
 Hao, Shiqiang | A10, A64, A8, B43b, P112, P202, P215
 Harima, Yutaka | P258
 Harter, Jackson R. | P282
 Hartung, David | B56
 Hasegawa, Yasuhiro | B4
 Hashikuni, Katsuaki | A33, P113
 Hasler, Roger | P120
 Hassan, Zeinab Mohammed | P280
 Hauback, Bjørn C. | P109
 Hautier, Geoffroy | A39, A45
 Hayakawa, Jun | A54, P173
 Hayakawa, Yasuhiro | P59
 Hayashi, Kei | P114, P286
 Haykawa, Jun | P228
 Hazama, Hirofumi | C58a
 He, Bin | P115, P230
 He, Danqi | B13, B13, P116, P165
 He, Jian | A7
 He, Jiangang | P66, P112
 He, Jiaqing | B44, P99
 He, Ran | A12, B29, B30
 He, Tianming | C36
 He, Xu | P238, P241
 Hecht, Matthias | C21
 Heinrich, P. | P292
 Heitjans, Paul | P206
 Hejtmanek, Jiri | P144
 Hendricks, Terry | B67, C63, P48
 Heremans, Joseph | A55, A57, B1, C56, P115, P230
 Hermann, Raphael | A63

Hermet, P. | P322
 Herrero, Oscar | P50, P325
 Hewitt, Corey A. | B50, P97
 Hierold, Christofer | P34
 Hillebrecht, Harald | P257
 Hirayama, Naomi | P296
 Hiroi, Satoshi | P117
 Hirono, Shinsuke | B20
 Ho, Ju-Yu | P37
 Hochenhofer, Markus | B38
 Hodges, James | A8
 Hoelzel, Markus | P206
 Hofmann, Tommy | A67
 Hogan, Brea | P118
 Holder, Cameron F. | P233
 Holgate, Tim | P329
 Hollar, Courtney | B48b, C22, P271
 Hong, Jiawang | A48
 Hong, Seok-kyoon | P269
 Hong, Soon-Jik | P110
 Hoover, Kyle | C55, P259
 Hoser, Andreas | P101
 Hosseini, Aria | P91, P282
 Hou, Weikang | P39
 Hsieh, Wen-Pin | B58a
 Hu, M. Y. | A63
 Hu, Ming | P311
 Hu, Tao | P07, P200
 Hu, Tiezheng | B52, B55
 Hu, Tiezong | P255
 Hu, Wenhua | C49, P39
 Hu, Xiaojun | P146
 Hu, Yanyun | B32
 Hu, Yong-Jie | C43, P100
 Hua, Xia | A10



Huang, Andy | P256
 Huang, Botao | P200
 Huang, Chen-Kuo | C11, C63, P62
 Huang, Lihong | B29
 Huang, Mei-Jiau | A49, P20
 Huang, Tai-Hsiang | P37
 Huang, Zhiwei | A35
 Huber, Jens | P257
 Huber, T.E. | P172
 Huber, Tito | C68a
 Hübner, Ralph | P178
 Hung, Cain J. | P253
 Hunter, Haywood | C8
 Huo, Dexuan | P119
 Huxtable, Scott | B31a, B5, P130
 Huyan, Huaixun | P175
 Hwan Jaung, Yun | P211
 Hwang, Junphil | C33

I

Ibáñez, Maria | P120
 Ibn-Mohammed, Taofeeq | P121
 Ibrahim, Dorra | P122
 Ide, Naoki | P164
 Ihlefeld, Jon F. | A58
 Ihly, Rachele | A68
 Iida, Takuya | P12
 Iida, Tsutomu | P296
 Ikeda, Hiroya | P59
 Ikeda, Takuji | A22
 Ikeda, Teruyuki | B4
 Ikemoto, Koichi | P14
 Ikenishi, Hitomi | A60
 Ikeuchi, Satoaki | P40
 Il Kim, Sang | B43a

Imae, Ichiro | P258
 Imai, Yoji | A44
 Imai, Yukihiko | B61
 Imasato, Kazuki | A14, P123, P266
 In, Jeong | P140
 Inaba, Ayumi | P219
 Inada, Minoru | P196
 Inerbaev, Talgat | P131
 Inukai, Manabu | P164, P167, P174, P300
 Iqbal, Arbab | P29
 Ishibe, Takafumi | P124
 Ishikawa, Itsuki | P168
 Ishikawa, Junichi | P40
 Itoh, Takashi | P41
 Ivanov, Yu.V. | P187
 Ivas, Toni | P227
 Iversen, Bo Brummerstedt | A28, A30, A9, B66, P268, P314
 Iwahashi, Taisei | B61
 Iwanaga, Junpei | P180
 Iyer, Rakesh | P125, P126
 Izgi, Mehmet Han | B15

J

Jacob, A. | A34
 Jacob, S. | A34
 Jain, Anubhav | A39
 Jakob, Matthias | P206
 Janczewski, Markus | P05
 Jang, Eunhwa | A70
 Jang, Kyung-Wook | P210
 Jayachandran, B. | C45
 Jeandupeux, Laure | P199
 Jeon, Seokwoo | P269
 Jeong, Mahn | P212

Ji, Dongxu | P13
 Ji, Pengxia | P127
 Jia, Runping | P128
 Jian, Jikang | P278
 Jiang, Peng | A35
 Jiang, Qinghui | P238, P241
 Jiang, Song | A69
 Jiang, Xiaoping | P256
 Jiang, Xin | A69, B49
 Jik Hong, Soon | P95
 Jin, Qun | A69, B49
 Jin, Younghwan | P327
 Jo, Ji Young | A72, P141
 Johnson, D. C. | A63
 Johnson, David | P294
 Johnson, Stephen | A25
 Jood, Priyanka | P47, P77, P98
 Jørgensen, Lasse Rabøl | B66
 Joshi, Giri | C6, P259
 Jund, Philippe | A37
 Jung, Sung-Jin | P129
 Jung, Woo-Jin | P260, P261

K

Kagomoto, Yuki | P262
 Kajitani, Tsuyoshi | C50
 Kamila, Hasbuna | B16, B17
 Kamińska, Paulina | P297, P307
 Kanatzidis, Mercouri G. | A8, B14, B43b, P47, P202, P215, P218, P312
 Kanazawa, I. | P204
 Kang, Han-Byul | B31a, B5, P130
 Kang, Stephen | A14, B14, B64, P123, P266
 Kanimba, Eurydice | P42
 Kanno, Masahiro | A22

Kanno, Tsutomu | A11, A14
 Kano, Hisashi | P14
 Kansara, Shivam | P213, P306
 Kara, Gökhan | P34
 Kar-Narayan, Sohini | P25
 Karpenkov, Dmitriy | P131
 Karri, Naveen | C42
 Kato, Sadahiro | P222
 Katsura, K. | P204
 Katsura, Yukari | A44, P166
 Katsuyama, Shigeru | C15
 Kaushik, S.C. | P17, P18
 Kauzlarich, Susan | A19, P73, P94, P186, P273
 Keller, Thomas | A67
 Kempf, Nick | B48b, B68, C22, C66, P271
 Keppner, Herbert | P199
 Keshavarz, M.K. | B12
 Keyser, Steve | P329
 Khan, Faizan | P59
 Khare, Neeraj | P135
 Khmelevskiy, S. | P292
 Khovaylo, Vladimir | P131, P177, P229, P231
 Kihou, Kunihiro | A18, P136
 Kikuchi, Daisuke | P222
 Kikuchi, Yuta | P77
 Kim, Byeong Geun | P207, P216
 Kim, Byung-Wook | B41, C40
 Kim, Chingu | P141
 Kim, Choong Sun | P15
 Kim, Dong Sik | C12
 Kim, Donggyu | C10
 Kim, Eunbin | P110
 Kim, Ga Reoung | P105
 Kim, Gwansik | B21, B41
 Kim, Hee Seok | C3



Kim, Heesuk | P141
 Kim, Hoon | C33
 Kim, Hyeok-Jin | P261
 Kim, Il-Ho | P44, P54, P80, P207, P210, P260, P261
 Kim, Jin-Sang | P129
 Kim, Jiwon | P132, P264
 Kim, Jonathon | P253
 Kim, Jungdae | A1, P88
 Kim, Ki Sung | B27
 Kim, Ki Wook | P301
 Kim, Myong Ho | P191, P192
 Kim, Seo Young | P267
 Kim, Seong Keun | P129
 Kim, Sun Jin | P43
 Kim, Sung Wng | B27, B43a
 Kim, Wan Sik | A72
 Kim, Woochul | C10, C33
 Kim, Yeong Seon | P49, P327
 Kim, Yong Jae | P141
 Kim, Yong-Hyun | A68
 Kim, Yongjun | C20
 Kim, Young-June | B32
 Kim, Young-Min | P141
 Kimber, Mark L. | C61
 Kimura, Kaoru | A44, P166, P204
 Kimura, Yoshisato | B46
 Kish, Louis B. | P253
 Kitahara, K. | A44, P166, P204
 Kitiwan, Metaya | P78
 Kiue, Hideyuki | B4
 Kiyama, Makoto | P167, P174
 Klar, Peter J. | B56
 Klavins, Peter | B8
 Kleinke, Holger | A27
 Klobes, B. | A63

Gluge, M. | C19
 Knapp, I. | P292
 Koacaarslan, Ilhan | B15
 Kobayashi, Yoshinao | P318
 Kober, Martin | C64
 Kobylanskaya, Anna | C68a
 Kodani, Takushi | A44
 Kogo, Yasuo | P296
 Koh, Lenny | P121
 Koh, Yee Rui | C60
 Kohri, Hitoshi | P133
 Komine, Takashi | B4
 Komiyama, Takao | P90
 Kommini, Adithya | P283, P284
 König, Jan | C19, C38
 Konopko, L.A. | P172
 Konopko, Leonid | C68a
 Koo, Jar-Myung | P110
 Kooi, Bart J. | P74
 Koripella, Ramesh | C46
 Korolkov, Timofei | P231
 Korotaev, Pavel | P298
 Kosaka, Yasufumi | A33
 Kosuga, Atsuko | B57, P12, P103, P262
 Kotsubo, Yuichi | P180
 Koumoto, Takashi | P258
 Kousaalya, Adhimoalam Bakthavachalam | P125
 Kovaleno, Maksym V. | P120
 Kovnir, Kirill | A26, B8, P182
 Koyano, Mikio | P263, P300
 Koza, Michael | A37
 Kozinsky, Boris | B36
 Kraaijveld, Bert | C35
 Kruszewski, Miroslaw | B31b
 Kubota, Yoshiki | B57

Kubouchi, Masataka | P286
Kühnel, Kati | C7
Kulsi, Chiranjit | P163
Kumagai, Masaya | A44
Kumar, Anil | P74, P134
Kumar, Sunil | P135
Kumari, Suchitra | P308
Kunioka, Haruno | A18, P136
Kunkel, Grace E. | P233
Kuribayashi, Hironobu | P223
Kuriyama, Kou | P320
Kuroki, Kazuhiko | P289
Kurosaki, Ken | A66, B42, P47, P98, P137, P209, P221, P228
Kurosaki, Yosuke | P173
Kurosawa, Masashi | B61
Kurzydowski, Krzysztof Jan | P297, P307
Kuster, Beatrice | P120
Kuwahara, Masashi | P318
Kuwahara, Shimpei | A66
Kwak, Jinwoo | C40, P16
Kwon, Suyong | P88

L

Lam, Kwok Ho | P138
Lamba, Ravita | P17, P18
Lan, Jin-Le | P270
Lan, Rui | P318
Lan, Tian-Wey | P139
Lara-Ramos, David | C41, P315
Lashkevich, Igor | C5
Laux, Edith | P199
Lebedev, Oleg I. | B8
LeBlanc, Saniya | C16, C16
Lee, Byunghun | B41
Lee, Chih Hao | P85
Lee, Chul-Ho | A18, B70, P136
Lee, Eui-Sup | A68
Lee, Eun Ji | P141
Lee, Glenn S. | P330
Lee, Hansaem | C40
Lee, Hee-Woong | C38
Lee, Heonjoong | C31, C57
Lee, Ho Seong | P140
Lee, HoSung | P51
Lee, Hwijong | B21, B41
Lee, Hye Jeong | P141
Lee, Hyeon Jun | P141
Lee, Hyunmyung | A72
Lee, Jae Ki | C12, P88
Lee, Jaeho | A50, P53
Lee, Jaekwang | P88
Lee, Jong-Kook | C40
Lee, Jounghee | A68
Lee, Kap-Ho | P110
Lee, Kathleen | C11, P142, P217
Lee, Kyu Hyoung | B21, B27, B41, B43a, P132
Lee, Sang-Gil | P141
Lee, Sang-Kwon | P143, P185
Lee, Soonil | P44, P54, P191, P192, P207, P210, P212
Lee, Won-Yong | P143, P185
Lee, Wooyoung | B21, B41
Lee, Yu-Seong | P44
Leforestier, J. | B19, P169
Legrand, V. | B10
Lei, Hao | B49
Lei, XingXing | P08
Leinenbach, Christian | P227
Lemal, Sébastien | P299, P303



Lenoir, Bertrand | P122, P144, P203
Lessmann, Frederick | C21
Levinsky, Petr | P144
Levy, George | C71
Li, Billy | C11, C63, P45, P56, P62
Li, Carl | P11
Li, Chen | A48
Li, Cuncheng | B13, P116, P127, P249
Li, Di | P189
Li, Dongyuan | P337
Li, Guodong | A39, C41, P315
Li, Haoqi | P145
Li, He-Zhang | P148
Li, Hongtao | P337, P338
Li, Hui-Tao | P335
Li, Jialiang | P146, P234
Li, Jing-Feng | B20, P67, P96, P220, P225, P274
Li, Ju | P99
Li, Juncai | P189
Li, Junchao | P234
Li, Peng | P38, P146, P147
Li, Shan | P278
Li, Shanming | P278
Li, Weixin | P241
Li, Wen | A3
Li, Wenjie | B31a, B5, P60, P130
Li, Wu | A7, P65
Li, Xiaoshuang | P227
Li, Xiao-ya | C72
Li, Xin | A32, P154, P238, P241
Li, Yi | P276
Li, Yifei | P281
Li, Zhen | P294
Li, Zhigong | P19
Li, Zhiliang | B20, P67
Liang, Dou-Dou | P148
Liao, Bolin | B30
Liao, Jincheng | P64
Lien, Hsiang-Ting | B58a
Lijewski, Piotr | P36
Lim, Chang-Hyun | P191
Lim, Jae-Hong | P132, P264
Lima-Sharma, Ana L. | B59, B62
Lin, Ben | P11, P19
Lin, Chan-Chieh | A2, P105
Lin, Ming-Chyuan | P20
Lin, Pengtao | P279, P280
Lin, Siqi | A56, P149
Lin, Tie | P334
Lin, Yuan-Hua | A61
Lin, Yuanhua | P270, P311
Lin, Yu-Li | C34
Lindemann, Andre | B69
Lindorf, Marc | B58b
Linker, Thomas | P330
Linseis, Vincent | B65
Liska, Sebastian | C6, P259
Liu, Chang | A69
Liu, Dongmei | P150
Liu, Guanyu | P55
Liu, Hongwu | P65
Liu, Huijun | P165
Liu, Jie | C8
Liu, Lisheng | C47
Liu, Ning | P278
Liu, Rui | P270
Liu, Te-Huan | B30
Liu, Wei | B52
Liu, Weishu | B2

Liu, Xiangxiang | P335, P336, P337, P338
Liu, Xun | C26, P08, P32
Liu, Y. | P190
Liu, Yaochun | P151
Liu, Yao-Chun | P244, P270
Liu, Yefeng | P246
Liu, Yintu | B28
Liu, Yong | A56
Liu, Yuanfeng | B15
Liu, Yuchun | P239
Liu, Zhiyuan | A56, P116
Liu, Zihang | A13, B2
Liu, Zi-Kui | A47, C11, C43, P100
Lo, Chih-Hung | P20
Lorenzi, Bruno | A52
Lu, Baiyi | P21
Lu, Haipeng | P175
Lu, Nianhui | P335, P336, P337, P338
Lu, Ruiming | P152
Lu, Xing | C69
Lu, Xu | P153
Lu, Zhilun | A67
Luo, Jun | P154, P246
Luo, Pei | C49
Luo, Qi | P147
Luo, Yiping | P11, P19
Luo, Yubo | P241
Luo, Zhongzhen | P155
Lv, Ping | C72
Lv, Qin | A65
Lv, Tu | P335, P336
Ly, Trinh Thi | A1
Lydia, R. | A2
Lyo, Inwoong | B41

M

Ma, James | P81
Ma, Jie | A48
Ma, Jinlong | A7
Ma, Shifang | B13, P116, P127, P249
Maassen, Jesse | A41
Macucci, Massimo | B18
Madan, Deepa | A70
Maddux, Jay | B67, C38
Madsen, Georg K.H. | A30
Maeda, Tatsuro | B61
Maejima, Risa | B7
Maingnan, A. | P72
Malhotra, Abhishek | C8, P272
Mallick, Mofasser | P156, P157, P158
Mallik, Ramesh | B45
Manettas, Andrew | P52
Mangolini, Lorenzo | P91, P282
Mann, Chris | C55
Mansour, Omar | P159
Mao, Jun | A12, A13, B30, P195
Mao, Yu | C17
Mari, A. | C67, P30
Marquez, M. | B10
Márquez-García, Lourdes | P265, P316
Marti, Roger | P199
Martin Løvvik, Ole | A43, B72
Martin, Joshua | B63
Martin, Lukas | P227
Martinez, Alvaro | C51, C62, C70, P50, P325
Masaryk, Michal | P33
Mason, Thomas O. | A65, P162
Masri, Sami F. | P02
Masschelein, Philippe | P122



Masuoka, Yumi | C58a
Masut, R.A. | B12
Matsubara, Masato | C58a
Matsumura, Yoko | A60, C15
May, Andrew | A48
McAleer, Mike | C6, P259
McKinney, Robert | A38, P285
Medlin, Doug L. | B59
Mehta, Rutvik | C48a, P160
Melis, Claudio | A52
Meng, Fanchen | A7
Meng, Xiangning | P21
Merabia, S. | B10
Meroz, Omer | P161
Meza-Galvan, Jesus | C55
Micallef, Antoine | P319
Mijanjos, Ángel Fabian | P265
Miller, Elisa M. | A68
Miller, Samuel | A65, P162
Min, Gao | C44, P265, P316
Min, Taewon | P88
Minnich, Austin | P175
Mistry, Kevin S. | A68
Mitarai, Kosuke | P323
Mitchell, Dan | P259
Mitra, Mousumi | P163
Mitsuyasu, Toshio | P14
Miyamoto, Yutaka | P14
Miyata, Masanobu | P263, P300
Miyazaki, Hidetoshi | P164
Miyazaki, Koji | P320
Miyazaki, Yuzuru | P114, P286
Miyoshi, Kazutomi | P222
Mo, Changki | C42
Mohammed, Ameri | P176

Mohn, Melanie | C41, P315
Mokhtar, Berrahal | P176
Moll, Adrien | B10, P322
Monnet, V. | B19
Montero, Francisco | C58b
Moon, Jaeyun | B48a
Morelli, Donald T. | P233
Mori, Takao | A54, B53, P240, P302
Mori, Tomohiko | P222
Morimune, Jiro | P14
Morioka, Takayuki | P46
Moser, R. | P292
Moskovskikh, Dmitry | P131, P177, P229, P231
Moulay, Noureddine | B34, P159
Mu, Xin | A56, C49, P127, P165, P249
Mudasar, Farhan | P166
Mueller, Eckhard | P319
Mukhanov, Andrey | P298
Müller, Eckhard | B16, B17, P101
Mun, Hyeona | B43a
Munetoh, Shinji | P180
Murakami, Hiroyo | A60
Murata, Masayuki | B4, P331
Murphy, Ronan | P205
Murray, Eamonn | P205
Musunuri, Sriharshita | P22, P328
Muta, Hiroaki | A66, B42, P98, P137, P209, P221, P228
Muthe, K. P. | P75
Muthusamy, Omprakash | P167, P174
Mykhailo, Kovalchuk | P76
Myung, Nosang V. | P132, P264

N

Nakamae, Sawako | P200
Nakamura, S. | P204
Nakamura, Shinji | P14
Nakamura, Yoshiaki | P124, P197, P323
Nakashima, Kunihiro | P180
Nakatsugawa, Hiroshi | P168
Nakatsuka, Osamu | B61
Nakatsukasa, George | P45, P56
Nambu, Akira | P173
Nan, Ce-Wen | A61, P270
Narducci, Dario | A52
Narendra, Namita | P301
Navone, Christelle | B19, P169, P170
Nayeb Sadeghi, Safoura | P294
Nazarenko, Alexandr | P23
Neff, David J. | C63
Neumann, Taylor | C9
Nguyen, Huu Do | P05
Nguyen, Van Du | P191, P192
Ni, Jennifer | A48, P45
Nichenametla, Charan Krishna | C7
Nie, Ge | B5, P130
Nie, Xiaolei | B13, C49, P39, P127, P165, P249
Niedziela, Jennifer | A48
Niedziolka, Kinga | A37
Nielsch, Kornelius | B65, C41, P315
Nietschke, Frederik | P171
Nikolaeva, Albina | C68a, P172
Nishiate, Hirotaka | A18, P136
Nishide, Akinori | A54, P173, P228
Nishikubo, Hideo | P222
Nishino, Shunsuke | P167, P174, P263, P300
Nishino, Yoichi | P164
Nishio, Keishi | P296
Niu, Shanyuan | P175

Niu, Sitong | P334
Nolas, George | B9
Nomura, Masahiro | P240
Norouzzadeh, Payam | P301
Norton-Baker, Brenna | A68
Noureddine, Moulay | P176
Novikov, S.V. | P187
Novitskii, Andrei | P177, P231
Nowakowski, Pawel | P253
Nozari, Amin | P272
Nuss, Juergen | P178

O

O'Toole, Alex | C48a, P160
Oberoi, Amandeep | P31
Ochs, Andrew M. | P233
Oeckler, Oliver | P74, P171, P206
Oh, Min-Wook | C38
Ohishi, Yuji | A66, B42, B61, P98, P137, P209, P221, P228
Ohkubo, Isao | P302
Ohno, Saneyuki | A14, A39, P123, P266, P328
Ohta, Akio | B61
Ohta, Michihiro | A33, P47, P77, P98, P113
Ohta, Taisuke | C55
Ohtaki, Michitaka | A62, P113
Okamoto, Kazuya | B7
Okamoto, Yoichi | P168
Oki, Sae | P57
Oku, K. | C50
Okuhata, Ryo | P323
Olsen, Michele | C59
Olvera, Alan | B11, P69, P179
Omoto, Tatsuro | B57



Oner, Yildirhan | B15
Oppitz, Gregor | P319
Orr, B. | P29
Ortiz, Brenden | A15, A19, A38, A65, B37, P295
Osakabe, Yuki | P180
Oshman, Chris | C59
Osipkov, Alexey | P24
Ottolina, V. | C67, P30
Ou, Canlin | P25
Ouchi, Hideyasu | A44, P181
Owczarczyk, Zbyslaw R. | A68
Owens-Baird, Bryan | P182
Ozaki, Taisuke | P300
Ozolinš, Vidvuds | P112
Oztan, Cagri | C48b
Ozturk, Mehmet | C8, C9

P

Padmanabhan Ramesh, Viswanath | C9
Page, Alex | B11, B15, P69
Paik, Jong-Ah | C11, P48, P62
Pailhès, S. | B10
Palmeira Filho, Henrique | P26, P27
Palmer, Todd S. | P282
Palmqvist, Anders | P268
Pan, Yu | P183
Pangat, Rahul | C22
Pandey, Sudhir K. | P214
Panithi, Sireesha | B45
Parekh, Dishit P. | C9
Parilla, Phil | C59
Park, Cheol-Hee | C12
Park, Hwanjoo | C10, C33
Park, Hyung-Ho | P129

Park, Ji-Woong | P141
Park, Kyeonsoon | P184
Park, No-Won | P143, P185
Park, Sang Hyun | P49, P327
Park, Su-Dong | P88, P140
Park, Sun Hwa | P269
Park, Sung Hoon | P267
Parker, David | A53
Passaretti, F. | B51
Patil, Akash | B17
Pauken, Michael | P56
Paz Soldan Palma, Jorge | C11, C43
Pearson, Matthew | C31, C57, P42, P60
Pedersen, Steffen H. | A30
Pei, Jun | P244
Pei, Yanzhong | A3, A31, A56, P84, P149, P278
Peilstöcker, Jan | B56
Peltz, Leora | C55
Peng, Zhi | B13
Pennelli, Giovanni | B18
Péré, D. | A34
Perez, Christopher | P186
Pérez, Gurutze | P50, P325
Pérez, Nicolas | C41, P315
Pérez, Pilar | P199
Persson, Clas | P109
Persson, Kristin | A39
Phan, Brian | P56, P62
Philips, M. | C44
Pi, J.W. | P184
Pichon, Pierre-Yves | C35
Pickett, Warren | A19
Piggott, Alfred | C28
Pilla, Srikanth | P125, P126
Pinkowski, Stanley | P62

Pitschel, Kelsey | P51
Placha, Katarzyna | C14
Platte, Frank | P05
Podkaminer, Jacob | B59
Podloucky, R. | P292
Pohls, Jan-Hendrik | A39, B14
Poosapati, Aswani | A70
Popov, I.A. | P172
Popuri, Srinivas | P74
Potyak, V.Yu. | P291
Poudel, Bed | B31a
Poudeu, Pierre Ferdinand | B11, B15, P69, P152, P179
Powell, Anthony V. | P265, P317
Powell, Damian | P316
Prado-Gonjal, Jesús | P265, P317
Prenninger, P. | P292
Priya, Shashank | B31a, B5, C31, C57, P42, P130
Promkhan, Phichit | A19
Protsenko, D. | C27
Pshenay-Severin, Dmitry | P187
Puglia, Fabio | C67, P30
Pusko, Matthew | B48a

Q

Qi, Delei | P65
Qi, Hui-Long | P336
Qian, Bosen | P188
Qiao, Jixaing | B49
Qin, Xiaoying | P189
Qing, Shaowei | P28
Qiu, Jianhang | A69
Qiu, Jianhui | P90
Qiu, Manting | P332

Qiu, Pengfei | B14, P190
Qu, Sanyin | A71, P243
Qu, Xiaodan | P119
Quang Nguyen, Van | P88

R

Rabiei, Afsaneh | P254
Rahbar, Nader | P03
Rahman, Jamil | P191, P192
Rajput, Kalpna | P193
Ram, Jasa | C68b
Ramakrishnan, Anbalagan | P194
Raman, Sankar | P194
Ran, Yuan | P07
Rana, Mohammad Sohel | P29
Ravi, Vilupanur | A47, B39, C11, C43, P45, P100
Ravichandran, Jayakanth | P175
Ravot, D. | B10
Rea, Jon | C59
Reales Ferreres, Xavier | P52
Reaney, Ian | P121
Reardon, Hazel | B66, P268
Redel, Engelbert | P280
Reith, H. | P187
Reith, Heiko | B65, C41, P315
Remeli, Muhammad Fairuz | P31
Ren, Fei | P145, P188
Ren, GuangKun | A61
Ren, Guang-Kun | P270
Ren, Pan | P334
Ren, Wei | B33
Ren, Yangyang | P238, P241
Ren, Zhifeng | A12, A13, B16, B2, B29, B30, B63, C3, P195, P278



Ren, Zongqing | P53
Rettenmayr, Markus | P150
Reyes-Gil, Karla | P324
Rezania, A. | P28
Rezaniakolaei, Alireza | P03
Rhyee, Jong-Soo | A2, P68, P86, P105
Ricci, Fabio | P299, P303
Ricci, Francesco | A39, A45
Richardson, Joseph | C22, P271
Rim, Hyun Jun | B21
Riseborough, P. S. | A20
Rithu, V. | C45
Riva, F. | C67, P30
Rivero, Joanna | C52, C61
Rochford, C. | B62
Rodríguez, Antonio | P50, P325
Rogackii, K. | P172
Roger, Michel | P200
Rogl, Gerda | B26, B38
Rogl, Peter | B26, B38, P292
Roh, Jong Wook | B41
Romaka, V. | B26
Rosendahl, Lasse | P03, P28
Ruan, Xiulin | P312
Ruedin, Josh | C6, P259
Ruterana, Pierre | P176
Ryll, Britta | P101

S

Sachdev, Kanupriya | P83
Said, Ayman | A48, B9
Said, Juliana | C52, C61
Saito, M. | C50
Saito, Miwa | P168

Saito, Wataru | P286
Sakai, Eiichi | P90
Sakamoto, Shota | P59
Sakamoto, Tatsuya | P196
Sakane, Shunya | P197
Sakuma, Tasuku | P263
Sakurai, Hiroya | P198
Salez, Thomas | P199, P200
Salvador, James R. | B32
Salvador, James | C38
Salvo, Milena | C14
Samsonidze, Georgy | B36
Sanghadasa, Mohan | B5
Sanglard, Pauline | P199
Sangle, Abhijeet | P25
Sankhla, Aryan | B17
Saparamadu, Udara | B16
Sargolzaeiaval, Yasaman | C9
Sarkar, Sumanta | P202
Sasaki, Shinya | A60
Sassi, Selma | P203
Sato, Hiroki K. | A11, A14
Sato, Naoki | A44, P204
Sauerschnig, P. | B26
Savelli, Guillaume | P170
Savic, Ivana | P205
Savoy, Steve | C55, C6, P259
Sawano, Kentarou | P197
Schellschmidt, Maria | P171
Schierning, Gabi | C41, P315
Schlörb, Heike | C41, P315
Schmidt, Whitney | P121
Schmitz, Andreas | P101
Schoensee, Luke | C66
Schönecker, Axel | C35

- Schrade, Matthias | B72, P109
Schwarz Müller, Stefan | P74, P206
Schwingenschloeg, U. | P304, P305
Semeniuk, Volodymyr | C27
Semprimoschnig, Christopher | P122
Seo, Kanghyun | P207
Seo, Seung-Ho | P54
Seo, Won-Seon | P191, P192, P210, P212
Seo, Yong-Seog | P49
Sertkol, Murat | B15
Servantie, A. | B19
Seyring, Martin | P150
Shahab Naghavi, S. | P112
Shakouri, Ali | C60, P288
Sharma, Peter A. | A58, B59, B62
Sharp, Jeff | B40, C31, C38, C57, C59, P42
She, Wuchang | C47
Shen, Jiawen | P278
Shen, Limei | P55
Shen, Tzu-Hsien | P208
Shen, Xingchen | A29
Shi, Dongliang | P138
Shi, Jing | A56, P248
Shi, Wei | P243
Shi, Wenbo | B49
Shi, Xun | B14, P64, P190
Shi, Yixuan | A27
Shilling, Lori | A70
Shimada, Kenji | P40
Shimizu, Kazuto | P137, P209
Shin, Dong-Kil | P80, P210
Shin, Hosun | P211, P269
Shin, Weon Ho | P191, P212
Shin, Won Ho | P207
Shiraishi, Kenichi | P14
Shiriaev, Pavel | P24
Shishov, Konstantin | P24
Shoko, Elvis | P304, P305
Shuai, Jing | A12, A13
Shuai, Li | P35
Shvanskaya, Larisa | P177
Siegal, Michael P. | B59, B62
Siegel, Nate | C59
Silpawilawan, Wanthana | B42
Simard, J.-M. | B12
Simonin, M. | B19
Simpson, Kevin | C1, C14
Sinclair, Derek | P121
Singh, Abhishek | C59
Singh, Ajay | P75
Singh, Baljit | P31
Singh, David J. | A12, A13, A17, B30
Singh, Deobrat | P213, P306
Singh, Jaspal | P326
Singh, Saurabh | P214
Sivaprahasam, Duraisamy | C45
Sizov, Andrey | P268
Skrypnyk, V.V. | P291
Slade, Tyler | B43b, P215
Smiadak, David | P328
Smith, Kevin | C11, C63, P45, P56, P62
Smith, Michael | P25
Smrekar, Suzanne | P56
Snyder, G. Jeffrey | A14, A39, A51, A65, B12, B14, B29, B64, C4, P123, P162, P227, P266, P278, P312, P313, P328
Son, Geonsik | P216
Song, Chunjun | P189
Song, Jae Yong | P88, P211, P269
Song, Junqiang | C30



- Song, Lirong | A28, A30
Song, Qichen | P287
Song, Shaowei | A12, A13
Song, Ying | P329
Sonvane, Yogesh | P213, P306
Sood, Aditya | A52
Soomro, S.A. | P184
Sopruncyuk, Viktor | B38
Sørby, Magnus H. | P109
Span, Gerhard | P05
Sparks, Taylor D. | P107
Śpiewak, Piotr | P297, P307
Star, Kurt | A47, C11, C43, P45, P100, P217
Stevanovic, Vladan | A15, A38, A40, A65, P162, P285, P295
Stevens, Daniel L. | P233
Stiewe, Christian | P319
Stockholm, John | C65
Stokes, David | C31, C57, P42, P60
Stone, Edward | A23
Stoumpos, Constantinos C. | B14
Struck, Alexander | P05
Su, Chuqi | C26, P07, P08, P32
Su, Kunpeng | P119
Su, Xianli | A56, P218
Suarez, Francisco | C9
Suekuni, Koichiro | A33, P47, P77, P113
Sugar, Josh | P324
Sugawara, Hiroharu | P219
Sugiyama, Shigeaki | A60
Sui, Jiehe | B2
Sujittosakul, Sutine | P56, P62
Sun, Bo | P175
Sun, Dongfang | P55
Sun, Fu-Hua | P67, P220
Sun, Jifeng | A12, A13, A17
Sun, Yajing | P38
Sun, Yandong | P311
Sun, Yining | P221
Sun, Yongxing | B3
Sung, Bo-Yi | C34
Sunj, Zhenya | P276
Susa, Masahiro | P318
Susai, Kyota | P222
Süßemilch, Frank | P05
Suzuki, H. | C50
Suzuki, Miho | A60
Suzuki, Ryosuke | P57
Suzuki, Takeyuki | P197
Suzumura, Akitoshi | C58a
Swieskowski, Wojciech | P297
- T**
Tabakovic, Momir | P33
Tadokoro, Jun | P222
Taguchi, Yutaka | P196
Tai, Kaiping | A69, A69, B49, B49
Tajima, Shin | C58a
Takabatake, Toshiro | A33, P47, P77, P113
Takagi, Hidenori | P178
Takagiwa, Y. | P204
Takagiwa, Yoshiki | B54
Takahashi, K. | C50
Takarabe, Kenji | P296
Takeda, Masatoshi | P223
Takeuchi, Tsunehiro | P104, P117, P167, P174, P300
Tamaki, Hiromasa | A11, A14
Tan, Gangfeng | C29, C36, P58
Tan, Gangjian | B43b, P218, P224

Tan, Wentao | P119
Tan, Xing | P270
Tang, Guihua | P281
Tang, Huaichao | P67, P225
Tang, Jun | P226
Tang, Nuan | C49
Tang, Xinfeng | A56, C17, P218
Tang, Yinglu | P227
Tang, Yunshan | C72, P64
Tanusilp, Sora-at | P137, P228
Taranova, Anastasiya | P131
Tarantik, K. | C19
Tatsumi, Shota | P180
Taubmann, Rebekka | B69
Taylor, Patrick | B67, C38
Teichert, Steffen | P150
Terlizzese, T. | P30
Thermitus, Marc-Antoine | B69
Thielen, Moritz | P34
Thiet Duong, Van | P88
Thorup, Peter Skjøtt | A9
Tian, Zhiting | P42
Tiedke, Stephan | P319
Tiryaki, Hasan | B15
Tishchenko, Leonid | P24
Titov, Oleg | C5
Toan, Tran Thi | A1
Toberer, Eric | A15, A19, A38, A40, A65, B37, C59, P162, P285, P295
Tobita, Kazuki | A44
Tobola, Janusz | P144
Tofan, Raluca | P109
Tokioka, Hidetada | P46
Tokonami, Shiho | P12
Tomas, C. | B51

Tomeda, Atsuki | P124
Tonini, Rita | A52
Torelló, Àlvar | P288
Torres, Pol | P288
Tranchant, Laurent | P320
Tsujii, Naohito | A54, P198, P240
Tu, Zhilong | P55
Tuan Duong, Anh | P88
Tuley, Richard | C1, C14
Turenne, S. | B12
Turner, Chris | P328

U

Uchida, Noriyuki | B61
Ueda, Tetsuzo | P14
Uher, Ctirad | A24b, B11, B15, P64, P69, P179, P334
Uhl, David | C11, P45
Uhl, Stefanie | P199
Uhlig, Benjamin | C7
Urata, Tomoyuki | A60
Urban, Jeff | A59
Usenko, Andrei | P229
Usui, Hidetomo | P289

V

Van Der Voort, Pascal | P230
Van Nguyen, Quang | A1
Van Schaik, Wim | C35
Van Thiet, Duong | A1
Vandaele, Koen | A55, P230
VanderGraaff, Aaron | B6
Vanoli, Ennio | P199
Varghese, Tony | B48b, C22, P271



Vashae, Daryoosh | C8, C9, P254, P272, P301
Vasilevskiy, Dimitri | B12, C38
Vasudevan, Rathinam | P83
Veety, Elena | C8
Velazquez, Enrique | C5
Veluswamy, Pandiyarasan | P59
Verdier, Paul | C38
Veremchuk, Igor | A6
Vergez, M. | C19
Verma, Rekha | P308
Verma, SS | P326
Vermeulen, Paul A. | P74
Verstraete, Matthieu J. | P299, P303
Vetter, U. | C19
Viennois, R. | B10, P322
Viennois, Romain | A37
Vijayraghavan, Karun | C55
Villalpando, Obed | C11, C63, P45
Visconti, Alizee | P169
Vitta, Satish | P156, P157, P158, P193
Vo, Trinh | A46, P81, P118, P235, P309
Völklein, Friedemann | B65
Volodin, Vasily | P23
Von Allmen, Paul | A46, P81, P118, P309
Voronin, Andrey | P131, P177, P231
Vrestal, J. | B26

W

Wagner-Reetz, Maik | C7
Walsh, Keith | P333
Wan, Qiushi | C26
Wang, Chao | P232
Wang, Chenyang | P246
Wang, Chien-Chang | C34
Wang, Dezhi | B63
Wang, Heng | A59
Wang, Hongtao | B35, P234
Wang, Hsin | C38
Wang, Jian | B8
Wang, Jue | B31a, B5, P60, P130
Wang, Liming | A71
Wang, Pei | P147
Wang, Shanyu | A32, A61, B3, C16
Wang, Si | A5
Wang, Xiaowei | C66
Wang, Xin-Ke | A6
Wang, Yaxian | P115
Wang, Yi | A47, C11, C43, P100
Wang, Yiping | C26, P08, P35
Wang, Yumei | A12
Wang, Zhengbang | P280
Wang, Zhengshang | P226
Watanabe, Kentaro | P124, P197, P323
Watanabe, Kosuke | P113
Watcharapasorn, Anucha | P78
Wedig, Ulrich | P178
Wee, Daehyun | B36
Wei, Kaya | B9
Wei, Ping | A56, B13, C49, P39, P116, P127, P165, P249
Wei, Tian-Ran | P67, P274
Weidenkaff, Anke | P178
Weller, Daniel | P233
Wen, Pengfei | P234
Wesenberg, Devin | A68
Whaley, Josh | P324
White, Mary Anne | A39, B14
Whitfield, Pamela | P101
Whiting, Christofer | P235

Wi, Jung-Sub| P211
Wickleder, Mathias S. | B56
Wijethunge, Dimuthu Parasad| C33
Wilbrecht, Sebastian| C37
Wille, Elizabeth | P73, P273
Wilson, Adam| C38
Windl, Wolfgang| A57, P115
Withey, Elizabeth| P324
Witting, Ian| B64
Woias, Peter| B65
Wolverton, Christopher| A10, A8, B29, B43b, P66, P112, P202, P215
Wong, Deniz| B58a, P208, P236
Wong-Ng, Winnie| B63
Wood, Eric| P48
Wood, Leslie| C6, P259
Wood, Max| P266
Wu, Chao-Feng| P274
Wu, Di| P99
Wu, Kuei-Kuan| P236
Wu, Lihua| A32, B3
Wu, Ping| P239
Wu, Ting| C30
Wu, Tsung-Heng| P37
Wu, Xiaofeng| P334
Wu, Yue| P312
Wubieneh, Tessera Alemneh| P237

X

Xi, Lili| A42, P310
Xia, Yi| P112
Xiao, Bao| P275
Xiao, Longjie| C36
Xiao, Yue| P290
Xie, Wenjie| P178

Xin, Hongxing| P189
Xin, Jiwu| P238
Xiong, Rui| P248
Xiong, Yan| P239
Xu, Ben| P311
Xu, Biao| P312
Xu, Dongchao| P111, P275
Xu, Guiying| P334, P335, P336, P337, P338, P338
Xu, Ling| P61, P239
Xu, Yongbing| C29

Y

Yabuki, Tomohide| P320
Yabuuchi, Shin| P173
Yadong, Deng| P35
Yagasaki, Takayoshi| P133
Yamada, Ikuya| B57
Yamada, Takahiro| A22
Yamaguchi, Hiroyuki| P90
Yamakawa, Wakana| C15
Yamamoto, Akio| P104
Yamamoto, Atsushi| A18, C39, P47, P77, P136, P331
Yamamoto, Masahiro| P14
Yamamoto, Yojiro| P12
Yamamoto, Yoshiyuki| P167, P174
Yamanaka, Shinsuke| A66, B42, P98, P137, P209, P221, P228
Yamane, Hisanori| A22
Yamasita, Akira| P46
Yamasoto, Keita| P180
Yan, Yanci| P153
Yan, Yonggao| C18
Yanagisawa, Ryoto| P240



Yang, Bin| A69
Yang, Dongwang| B52, P82, P276, P277
Yang, Hongjiang| B35
Yang, Hongliang| P310
Yang, Houjiang| P146, P234
Yang, Jihui| A32, A56, A61, B3, C16
Yang, Jiong| A32, A42, A61, B3, P154, P246, P310
Yang, Junyou| P238, P241, P242, P251
Yang, Nancy| C46
Yang, Ronggui| C69
Yang, Seung-Ho| P207
Yang, Zhenzhong| P154
Yanilkina, Aleksey| P298
Yao, Qin| A71, P243
Yao, Yao| P244
Yasseri, M.| B17
Yasuda, Kazutaka| P14
Yazawa, Kazuaki| C60
Yeh, Chien-Hsuan| C34
Yerzhan, Ashim| P131
Yin, Hao| A30
Ying, Justin| P10
Yoo, Chung-Yul| P49, P327
Yoon, Hana| P49, P327
Yoon, Jeong Seop| P212
Yoon, Yoseop| P143, P185
Yordanov, Petar| P178
Yoshiya, Masato| B22, B71
Yost, Kevin| C38
You, Li| P154, P246
You, Tae-Soo| A21, P89
Yu, Yun| C72
Yu, Guanting| P245
Yu, Guodong| A39

Yu, Kevin| B67, C11, C63, P62
Yu, Yue| B35, P146, P234
Yu, Ziqi| A50
Yuan, Shilong| P19
Yubuta, K. | B26
Yue, Hao| P65
Yulin, Tang| P35
Yun, Jae Hyun| P105
Yurchyshyn, Ihor| P291

Z

Zaima, Shigeaki| B61
Zaitsev, V.K. | P187
Zakaria, Mohamed Y. | P02
Zakharova, Elena| P177
Zabarjadi, Mona| C53, P294
Zeier, Wolfgang G. | B29
Zeier, Wolfgang| B56
Zera, Anna| B58b
Zeuthen, Christian| A9, B66
Zevalkink, Alexandra| A16, P328
Zhai, Pengcheng| B35, P38, P146, P147, P234
Zhan, Ruobing| P58
Zhang, Bing| P148, P153
Zhang, Bo| P63, P335, P336, P337, P338
Zhang, Bo-Ping| P148, P244
Zhang, Dai-Bing| P148
Zhang, Dan| P238, P241
Zhang, Haidong| C16
Zhang, Hao| B29, C30, P64
Zhang, Jian| P189
Zhang, Jiawei| A28, A30
Zhang, Jiye| P154, P246
Zhang, Kai| P279, P280

- Zhang, Li-bo | P335, P336, P337, P338
Zhang, Ming | P310
Zhang, Qihao | C30, P64
Zhang, Qingjie | A56, B13, C49, P39, P116, P127, P147, P165, P249
Zhang, Wenqing | A32, A61, B3, P154, P246, P310
Zhang, Xiaomi | A8, B43b, P202
Zhang, Yanhua | P334
Zhang, Yanliang | B48b, B68, C22, C66, P271
Zhang, Zheng | P65
Zhao, Dongliang | C69
Zhao, Hongbo | P290
Zhao, Huaizhou | P278
Zhao, Jing-Tai | A6
Zhao, Kunpeng | P247
Zhao, Lidong | A1, A24a
Zhao, Wenyu | A56, B13, C49, P39, P116, P127, P165, P249
Zhao, Xinbing | B28
Zhao, Yang | A69, B49
Zhao, Yao | P145
Zheleznyi, Mark | P231
Zheng, Gang | B52
Zheng, Haimei | P312
Zheng, Linglang | A3
Zheng, Shan | P310
Zheng, Tao | P63
Zheng, Wenwen | P248
Zheng, Yuanhua | A57, C56
Zhou, Ben H. | A68
Zhou, Hongyu | C49, C49, P39, P165, P249
Zhou, Jiawei | A12, B30
Zhou, Xiaoyuan | P153, P250
Zhou, Yanguang | P311
Zhou, Yilong | P312
Zhou, Zhangjian | P338
Zhou, Zhiwei | P238, P241, P242, P251
Zhu, Hangtian | P154, P252
Zhu, Hong | A39
Zhu, Miaoyong | P21
Zhu, Qing | A12
Zhu, Tiejun | B28
Zhu, Wanting | A56, B13, C49, P39, P127, P165, P249
Zhu, Yuanhu | A35
Ziabari, Amirkoushyar | P288
Zink, Barry L. | A68
Zinovyeva, Veronika | P200
Ziolkowski, Andrzej | P36
Zixiao, Liu | P107
Zybala, Rafal | B31b

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