30th International Conference on Thermoelectrics
ICT 2011
July 17-21, 2011, Traverse City, MI, USA

Time	Sunday	Monday	Tuesday	Wednesday	Thursday
	July 17	July 18	July 19	July 20	July 21
730-800	Arrival and Check-In	Registration/ Breakfast	Registration/ Breakfast	Registration/ Breakfast	Registration/ Breakfast
800-830					
830-900		Plenary Session	Parallel Sessions	Parallel Sessions	Parallel Sessions
900-930					
930-1000					
1000-1030		Coffee	Coffee	Coffee	Coffee
1030-1100		Parallel Sessions	Parallel Sessions	Parallel Sessions	Awards Session
1100-1130					
1130-1200					
1200-1230		Lunch	Lunch	Lunch	Lunch
1230-1300					
1300-1330					
1330-1400		Parallel Sessions	Parallel Sessions	Parallel Sessions	Parallel Sessions
1400-1430	Conference Registration (Governor's Prefunction) / Board Meeting (Northwoods)				
1430-1500					
1500-1530		Coffee	Coffee	Coffee	Farewell
1530-1600					
1600-1630		Parallel Sessions	Parallel Sessions	Parallel Sessions	Golf Outing
1630-1700					
1700-1730					
1730-1800				Board Meeting	
1800-1830		Poster Session/ Reception	Buses Depart		
1830-1900			Museum/Beach		
1900-1930	Welcome Reception (Outdoor Pavilion)			Banquet	
1930-2000					
2000-2030					
2030-2100					
2100-2130					
2130-2200					

30th International Conference on Thermoelectrics (ICT 2011)
July 17-21, 2011
Grand Traverse Resort
Traverse City, Michigan USA

Scientific Program

Monday Morning 8:30-10:00

	Governor's D **Opening/Plenary Session**
8:30-9:00	**Opening/Welcome** Donald Morelli, ICT 2011 Conference Chair Dr. Leo Kempel, Associate Dean of Research, Michigan State Univ. Tino Breithaupt, Traverse City Area Chamber of Commerce/ Michigan Economic Development Corporation Thierry Caillat, President, International Thermoelectric Society
9:00-9:45	**Plenary Talk** Dr. Altaf Carim, US Department of Energy and White House Office of Science and Technology Policy *Facing our Energy Challenges in a New Era of Science*
9:45-10:00	**In Memoriam** Norbert Elsner, Hylan Lyon, and Eugeniy Iordanishvili Konstantinovich

10:00-10:30 Coffee Break, Governor's pre-function area

Monday Morning 10:30-12:00

	SESSION A **Governor's C** **Session M1:** **Novel Concepts** *Chair: Joseph Heremans*	SESSION B **Governor's D** **Session M2:** **Bi_2Te_3 I: Bulk Nanostructured** *Chair: Zhifeng Ren*	SESSION C **Mackinac Room** **Session M3:** **Generators I** *Chair: Lasse Rosendahl*
10:30-10:45	M1.1 J.L. Cohn, et al. *Giant bipolar Nernst effect in a quasi-one dimensional metal*	M2.1 R.J. Mehta, et al. *High figure of merit n- and p-type bulk thermoelectric materials from directed synthesis and assembly of sculpted pnictogen chalcogenide nanocrystals*	M3.1 J.D. Koenig, et al. *Development of a thermoelectric generator based on chalcogenides for space applications*
10:45-11:00		M2.2 J.S. Dyck, et al. *Thermoelectric properties of chemically-synthesized $Bi_{2-x}Sb_xTe_3$ nanocrystalline materials*	M3.2 J.-A. Paik, et al. *Component life tests for segmented thermoelectric couples*
11:00-11:15	M1.2 J.P. Heremans, et al. *The spin-Seebeck effect in GaMnAs*	M2.3 U. Pelz, et al. *An aqueous chemistry approach to nano-bismuth telluride*	M3.3 S. Krishnan, et al. *Progress towards an optimization methodology for combustion driven portable thermoelectric power generation systems*
11:15-11:30	M1.3 Bo Yu, et al. *Modulation doping in three-dimensional bulk nanocomposites*	M2.4 C.-H. Yeh, et al. *Spark plasma sintering synthesized nanostructured $(Bi,Sb)_2Te_3$ alloys through the mixture of binary compounds Sb_2Te_3 and Bi_2Te_3*	M3.4 D.T. Crane, et al. *Validating steady-state and transient modeling tools for high power density thermoelectric generators*
11:30-11:45	M1.4 J.-H. Bahk, et al. *Thermoelectric power factor enhancement through miniband- conduction in III-V semiconductor superlattices at low temperatures*	M2.5 J.B. Beck et al. *Explosive shock wave consolidation of nanostructured bismuth telluride*	M3.5 J.S. Sakamoto, et al. *Skutterudite-based thermoelectric technology for waste heat recovery: progress towards a 1kW generator*
11:45-12:00	M1.5 C.F. Gallo, et al. *Highly anisotropic materials for improved thermoelectric and/or magnetothermoelectric performance*	M2.6 K.H. Lee, et al. *Enhancement of thermoelectric figure of merit for $Bi_{0.5}Sb_{1.5}Te_3$ by metal nanoparticle decoration*	

12:00-13:30 Lunch, Governor's AB

Monday Afternoon 13:30-15:00

	SESSION A **Governor's C** **Session M4:** **Oxides I** *Chair: Kunihito Koumoto*	SESSION B **Governor's D** **Session M5:** **Skutterudites I** *Chair: Ctirad Uher*	SESSION C **Mackinac Room** **Session M6:** **Device Performance** *Chair: Tim Hogan*
13:30-13:45	M4.1 M. Backhaus-Ricoult *Evaluation of titanium oxide based materials for thermoelectric power generation*	M5.1 M. Kaviany, *Structural order-disorder transitions and phonon conductivity of partially filled skutterudites*	M6.1 R. Funahashi, et al *Power generation of silicide modules for middle temperature range application*
13:45-14:00	M4.2 C. Liu Et al., *Preparation and properties of some misfit-structured thermoelectric oxides*		M6.2 K. Miyazaki et al *Printed thermoelectric thick film for a thermoelectric generator*
14:00-14:15	M4.3 T. Sparks, et al. *Electrical and thermal transport properties of strongly-correlated $LiMn_2O_4$ and Co_3O_4 spinels*	M5.2 C. Zhou, et al. *High temperature thermoelectric properties of Yb-filled skutterudite nanocomposites with antimonide nanoinclusions*	M6.3 T. Nemoto, et al. *Power generation characteristics of Mg_2Si uni-leg thermoelectric generator*
14:15-14:30	M4.4 A. Sakai, et al. *Systematic investigation of thermoelectricity in $Sr_nNb_nO_{3n+2}$*	M5.3 X. Su, et al. *Microstructure and thermoelectric transport properties of $CoSb_{2.75}Ge_{0.25-x}Te_x$ prepared by rapid solidification*	M6.4 G. Fraisse, et al. *Accuracy comparison of whole thermoelectric leg models*
14:30-14:45	M4.5 F.P. Zhang, et al. *Preparation, characterization, and high temperature transport properties of Fe-doped $Ca_{1-x}Fe_xMnO_{3+d}$ ($0 \le d \le 0.14$) oxides*	M5.4 S. Humer, et al. *From superconductivity towards thermoelectricity: $LaPtGe_{12-x}Sb_x$*	M6.5 L. Chen, *High performance skutterudite thermoelectric device: efficiency and service behavior*
14:45-15:00	M4.6 F. Li and J.-F. Li, *Effect of sol-gel coating on thermoelectric performance of Ni-doped $LaCoO_3$ ceramics*	M5.5 X. Li, et al. *Effect of lead on thermoelectric performance of $Yb_yCo_4Sb_{12}$*	

15:00-15:30 Coffee Break, Governor's pre-function area

Monday Afternoon 15:30-17:15

	SESSION A **Governor's C** **Session M7:** **Zintl Compounds** *Chair: Jim Salvador*	SESSION B **Governor's D** **Session M8:** **Full and Half-Heusler** *Chair: Terry Tritt*	SESSION C **Mackinac Room** **Session M9:** **Characterization I:** **Mechanical** *Chair: E.D. Case*
15:30-15:45	M7.1 E. Toberer, et al. *Ca_3AlSb_3: an inexpensive, non-toxic thermoelectric material for waste heat recovery*	M8.1 X. Yan, et al. *Improved ZT in both p- and n-type half-Heuslers*	M9.1 E.D. Case, *Thermal fatigue and waste heat recovery via thermoelectrics*
15:45-16:00	M7.2 A. Zevalkink et al. *Improved carrier concentration control in Zn doped $Ca_5Al_2Sb_6$*	M8.2 G. Joshi, et al. *Enhancement in thermoelectric figure of merit of n-type half-Heuslers*	
16:00-16:15	M7.3 C. Uvarov, et al. *Enhanced high-temperature thermoelectric performance of $Yb_{14-x}Ca_xMnSb_{11}$*	M8.3 P. Poudeu, et al. *Atomic-scale structural engineering approach to half-Heusler nanocomposites with drastically enhanced figure of merit*	M9.2 R.D Schmidt, et al. *Powder processing and mechanical characterization of lower cost or lead-free thermoelectric materials*
16:15-16:30	M7.4 K. Star, et al. *Synthesis and thermoelectric properties of $Yb_{14}MnSb_{11}$ derivatives*	M8.4 D. Do, et al. *Electronic structure and thermoelectric properties of iron-based full Heusler pseudo-gap system Fe_2NA [(N,A) = (V, Al) and (Ti, Sn)]*	M9.3 J.E. Ni, et al. *Limited bloating in $(Pb_{0.95}Sn_{0.05})_{0.92}(PbS)_{0.08}$-0.055%$PbI_2$ specimens as a result of processing conditions*
16:30-16:45	M7.5 S. Wang, et al. *Enhancement in thermoelectric performance by in-situ nanostructures and minute Cd-doping in β-Zn_4Sb_3*	M8.5 A. Nishide, et al. *High thermoelectric power factor of Heusler Fe_2VAl thin films with lattice strain*	M9.4 V. Ravi et al *Mechanical properties and thermomechanical modeling of thermoelectric materials and couples*
16:45-17:00	M7.6 J.-P. Fleurial, et al. *The search for practical next generation high temperature thermoelectric materials*	M8.6 D. Wee, et al. *Quasi-harmonic vibrational properties of TiNiSn from ab-initio phonons*	M9.5 S. Firdosy, et al. *Flexural properties of selected thermoelectric materials*
17:00-17:15	M7.7 J. Nesbitt, et al. *Thin coatings for sublimation suppression for $Yb_{14}MnSb_{11}$ thermoelectric material for space power applications*	M8.7 H.-H. Xie, et al. *Effects of Ti substitution on the thermoelectric properties of $Hf_{0.6}Zr_{0.4}NiSn_{0.98}Sb_{0.02}$ half-Heusler alloys by levitation melting and SPS*	M9.6 J.M. Ma et al., *Characterization of the mechanical properties of $La_{3-x}Te_4$*

18:15-20:15 Poster Session, Governor's EF

Tuesday Morning 8:15-10:00

	SESSION A Governor's C Session T1: Novel Materials I *Chair: Holger Kleinke*	SESSION B Governor's D Session T2: Skutterudites II *Lidong Chen*	SESSION C Mackinac Room Session T3: Automotive I *Chair: H. Schock*
8:15-8:30			T3.1 F. R. Stabler, *Thermoelectric systems impact on cars and trucks*
8:30-8:45	T1.1 T. Mori, et al. *Doping into voids and framework of boron cluster compounds*	T2.1 Puneet, et al. *Effect of In incorporation on the thermoelectric properties of* $CeFe_{3.5}Ni_{0.5}Sb_{12}$	T3.2 G.P. Meisner, *Thermoelectric generator prototypes for waste heat recovery from automotive exhaust gas*
8:45-9:00	T1.2 H. Sun and D.T. Morelli *Thermoelectric properties of* $Co_{1-x}Rh_xSi_{0.98}B_{0.02}$ *alloys*	T2.2 .J.Y. Cho, et al. *Thermoelectric properties of p-type skutterudites* $Yb_xFe_{3.5}Ni_{0.5}Sb_{12}$ $(0.8 \leq x \leq 1)$	T3.3 P. Chen and M. Soulliere *System level modeling of thermoelectric generators for automotive applications*
9:00-9:15	T1.3 M. Wagner, et al. *Defect and substitution variants of* $RuIn_3$ *– novel thermoelectrics*	T2.3 P.F. Qiu, et al. *High temperature electrical and thermal transport properties of fully filled skutterudites* RFe_4Sb_{12} *(R = Ca, Sr, Ba, La, Ce, Pr, Nd, Eu, and Yb)*	T3.4 J. Kitte, et al. *Thermoelectrics in the vehicle – challenges from the ideal process to integrated concept*
9:15-9:30	T1.4 Y. Takagiwa et al. *Thermoelectric properties of polygrained* $FeGa_3$*-type intermetallic compounds* $Ru(Ga,In)_3$	T2.4 R. Liu, et al. *High performance p-type skutterudites: the effect of Ni-doping and dual-filling*	
9:30-9:45	T1.5 S. Zhu, et al. *Optimizing the thermoelectric properties of polycrystalline* In_4Se_3 *by the in-situ formation of InSb nanoinclusions*	T2.5 Q. Jie, et al. *Improvements on thermoelectric properties and thermal stability of Nd-filled p-type skutterudites*	T3.5 L.A. Rosendahl, et al. *A novel application for thermoelectric generation: brake pads as an energy source*
9:45-10:00	T1.6 J.Y. Yang, et al. *Thermoelectric properties of polycrystalline* In_4Se_{3-x} *fabricated by mechanical alloying and hot pressing*	T2.6 P. Wei, et al. *Rapid preparation and thermoelectric properties of (Ba,In) double-filled skutterudites with unique nanostructures*	T3.6 D. Tatarinov et al. *Optimized characterization of thermoelectric generators for the application in automotives*

10:00-10:30 Coffee Break, Governor's pre-function area

Tuesday Morning 10:30-12:00

	SESSION A **Governor's C** **Session T4:** **Theory I** *Chair: Wenqing Zhang*	SESSION B **Governor's D** **Session T5:** **Bi_2Te_3 II: Bulk** *Chair: H. Scherrer*	SESSION C **Mackinac Room** **Session T6:** **Characterization II:** **Thermoelectric** *Chair: Neil Dilley*
10:30-10:45	T4.1 B. Kozinsky D*ecoupling and predicting thermoelectric effects using computation: thermal and electronic transport*	T5.1 D.L. Medlin, et al. *Atomistic studies of grain boundary structure in bismuth telluride*	T6.1 S. Iwanaga and G.J. Snyder *The scanning Seebeck coefficient measurement system for quality control of bulk and thin film thermoelectric materials*
10:45-11:00		T5.2 C. Schumacher, et al *Highly crystalline and perfectly stoichiometric bismuth antimony telluride compounds by pulsed electrochemical deposition technique and annealing*	T6.2 Y.G. Yan, et al. *Combinatorial approach on thermoelectric materials using a temperature dependent screening tool*
11:00-11:15	T4.2 M.-S. Lee and S.D. Mahanti *Validity of rigid band approximation in studying thermoelectric properties*	T5.3 C.M. Jaworski, and J.P. Heremans, *Porous tetradymite bismuth based chalcogenides with high figure of merit*	T6.3 P. Garrity *Direct measurement of absolute thermoelectric coefficients through electronic fluctuations*
11:15-11:30	T4.3 D. Parker, et al. *Doping dependence of thermoelectric performance in Mo_3Sb_7: first principles calculations*	T5.4 S.Q. Yang, et al. *The fabrication of high thermoelectric performance p-type $Bi_{0.5}Sb_{1.5}Te_3$ crystals using gradient freeze*	T6.4 S. Lee, et al *Characterization of electron transport in $Bi_2Te_{2.7}Se_{0.3}$ nanocomposite using the method of four coefficients*
11:30-11:45	T4.4 K. Kutorasinski et al *Calculations of electronic structure and transport coefficients in disordered half-Heusler alloys using KKR-CPA method*	T5.5 C.-H Yeh et al. *Optimization of anti-site defects interaction by extra Te content on $(Bi\text{-}Sb)_2Te_3$ thermoelectric materials*	T6.5 M. Schmidt et al. *Zero-field thermopower and thermal conductivity of a thin heterostructure membrane with a 2D electron gas*
11:45-12:00	T4.5 E. Flage-Larsen, et al. *The Lorenz function; its scattering properties and the validity of the parabolic approximation*	T5.6 J.-J. Shen, et al. *Thermoelectric properties of textured bismuth telluride based polycrystalline thermoelectric alloys prepared by spark plasma sintering*	T6.6 J. Chase, et al. *Measurement techniques for characterizing specific contact resistance of ohmic contacts between thermoelectric materials and metallization layers*

12:00-13:30 Lunch, Governor's AB

Tuesday Afternoon 13:30-15:00

	SESSION A **Governor's C** **Session T7:** **Nanoscale/Low Dimension** *Chair: Kevin Pipe*	SESSION B **Governor's D** **Session T8:** **Novel Materials II** *Chair: Yuri Grin*	SESSION C **Mackinac Room** **Session T9:** **Generators II** *Chair: Terry Hendricks*
13:30-13:45	T7.1 K. Zhang et al *Temperature dependent thermoelectric properties of HgCdTe superlattices*	T8.1 F. Gascoin, et al. *CdI_2 type layered structure as potential thermoelectric materials: example of the $ACrSe_2$ system*	T9.1 K. Settaluri et al *Thin thermoelectric generator system for body energy harvesting*
13:45-14:00	T7.2 R.B. Sadeghian et al *Calculation of nonlinear thermoelectric coefficients of $InAs_{1-x}Sb_x$ using Monte Carlo method*		T9.2 D. Samson, et al. *Flight test results of a thermoelectric energy harvester for aircraft*
14:00-14:15	T7.3 R. Vidu, et al. *Fabrication of doped $CoSb_3$ nanowires for high temperature thermoelectric materials*	T8.2 E.J. Skoug, et al. *Thermoelectric properties of the Cu_3SbSe_4-Cu_3SbS_4 solid solution*	T9.3 N.R. Kristiansen, et al. *Waste heat recovery from a marine waste incinerator*
14:15-14:30	T7.4 K. Miyazaki et al *Enhanced figure of merit of a nano-porous thin film*	T8.3 D. Do et al. *Electronic structure and thermoelectric properties of Cu_3SbSe_4*	T9.4 P.V. Mortensen and A.A. Enkeshafi *A novel application for thermoelectric generators: residential combined heat and power*
14:30-14:45	T7.5 N. Neophytou, et al. *Thermoelectric power factor of narrow silicon nanowires from atomistic considerations*	T8.4 J. Salvador, et al. *Microstructural investigation and thermoelectric properties of Cu/Ge/Se based diamond-like semiconductors*	T9.5 C. Suter and A. Steinfeld *A 1kWel thermoelectric stack for geothermal power generation – modeling and geometrical optimization*
14:45-15:00	T7.6 M. Murata et al. *Four-wire resistance measurements on bismuth nanowire encased in quartz template utilizing focused ion beam processing*	T8.5 L. Xi, et al. *Cu-Se bond network and thermoelectric performance of copper-containing compounds with diamond-like structure*	T9.6 T. Thompson, et al., *Integrating aerogel into space and terrestrial thermoelectric generator technology*

15:00-15:30 Coffee Break, Governor's pre-function area

Tuesday Afternoon 15:30-17:15

	SESSION A	SESSION B	SESSION C
	Governor's C **Session T10:** **Magnesium Silicide** *Chair: Mark Soulliere*	**Governor's D** **Session T11:** **PbTe/AgSbTe$_2$/LAST** *Chair: J. Snyder*	**Mackinac Room** **Session T12:** **Thin Film Devices** *Chair: H. Böttner*
15:30-15:45	T10.1 Z. Bian et al. *Thermoelectric transport modeling of Mg_2Si with embedded nanoparticles*	T11.1 M.D. Nielsen, et al. *Thermal conductivity of $NaSbTe_2$, $AgSbTe_2$, and their alloys: experimental results*	T12.1 J. Nurnus, *Micropelt's thin film thermoelectric generators: technology, devices, and applications*
15:45-16:00	T10.2 W. Liu et al. *Cooperative control of the electrical and thermal transport properties of $Mg_2Si_{1-x-y}Sn_xSb_y$ by optimizing Sn/Si ratio combined with Sb doping*	T11.2 Y. Chen et al. *Transport properties of $(Ag_{1-y}SbTe_{2+z})_{1-x}(SnTe)_x$ solid solutions*	
16:00-16:15	T10.3 N. Satyala and Daryoosh Vashaee *Modeling of thermoelectric properties of nanostructured magnesium silicide (Mg_2Si)compounds*	T11.3 M. Kanatzidis *Nanoscience of advanced bulk thermoelectrics*	T12.2 D.H. Lee, et al. *Thermoelectric devices based on bulk nanostructured silicon phononic crystals and nanowires*
16:15-16:30	T10.4 S.K. Bux, et al. *Mechanochemical synthesis and thermoelectric properties of magnesium silicide*		T12.3 T. Nishino and T. Suzuki *Fabrication and characterization of flexible thermoelectric devices using metal-filled via films*
16:30-16:45	T10.5 T. Yi et al. *Enhancement of thermoelectric efficiency of Mg_2Si with Si nanocomposites*	T11.4 J. Yang, et al. *Microstructure, nucleation, and electronic band structure modulation in $AgPb_mSbTe_{2+m}$-type nanocomposites*	T12.4 M. Mizoshiri et al., *Thin-film thermoelectric modules for power generation using focused light*
16:45-17:00	T10.6 H. Zhiming, et al. *Preparation of $Mg_2Si_{0.4-x}Sb_xSn_{0.6}$ by induction melting and spark plasma sintering, and thermoelectric properties*	T11.5 J. Dadda, et al. *The influence of annealing on nano/microstructures and thermoelectric properties of $AgPb_{18}SbTe_{20}$ compounds*	T12.5 R. Rostek, et al. *Fabrication and optimization of Bi_2Te_3 and $(Bi,Sb)_2Te_3$ microstructures for thermoelectric energy harvesting applications*
17:00-17:15	T10.7 H.L. Gao et al. *Flux synthesis and thermoelectric properties of eco-friendly Sb doped $Mg_2(Si,Sn)$ solid solutions*	T11.6 Z. Yu et al. *Synthesis and thermoelectric properties of LAST system bulk materials: substitution of VIB-group elements for tellurium*	T12.6 A. Yamamoto et al. *The effects of thermoelectric film thickness on the performance of in-plane thermoelectric modules*

18:15-18:45 Bus Departures for Excursions, Hotel Lobby/Entrance

Wednesday Morning 8:15-10:00

	SESSION A	SESSION B	SESSION C
	Governor's C **Session W1:** **Oxides II** *Chair: M. Backhaus-Ricoult*	**Governor's D** **Session W2:** **Bi_2Te_3 III: Low Dimensional** *Chair Jean-Pierre Fleurial*	**Mackinac Room** **Session W3:** **Automotive II** *Chair: Gregory Meisner*
8:15-8:30		W2.1 N. Peranio et al. *Single-crystalline, stoichiometric Bi_2Te_3 nanowires for transport in the basal plane*	W3.1 L.I. Anatychuk and R.V. Kuz, *Materials for automotive thermoelectric generators*
8:30-8:45	W1.1 D. Berardan, et al. *Thermoelectric properties of ZnO-based oxides revisited*	W2.2 M.P. Siegal, et al. *Independently controlling composition and structure in $Bi_2(Te_{1-x}Se_x)3$ nanowires to improve thermoelectric properties*	W3.2 C. Maranville, *Thermoelectric generator prototypes for waste heat recovery from automotive exhaust gas*
8:45-9:00	W1.2 Y. Ba, et al. *Nanostructured oxide thermoelectric materials $Nd_{2/3-x}Li_{3x}TiO_3$ with low thermal conductivity*	W2.3 G. Wang et al. *Structure analysis of Sb_2Te_3 film on (0001) sapphire*	
9:00-9:15	W1.3 B. Dabrowski and S. Kolesnik, *Exploration of transition metal perovskites for enhanced thermopower*	W2.4 Z. Aabdin, et al. *Sb_2Te_3 and Bi_2Te_3 thick films grown by room temperature MBE*	W3.3 L. Goenka and C. Maranville *System-level considerations for automotive thermoelectric HVAC*
9:15-9:30	W1.4 N.Van Nong et al. *Heavy ions doping coupled with metallic nanoinclusions: and effective way to improve the thermoelectric performance of p-type layered cobalt oxide materials*	W2.5 D. Banga et al. *Synthesis of Bi_2Te_3/Sb_2Te_3 superlattice electrodeposits via electrodeposition*	W3.4 T. Okuma et al. *A novel application of thermoelectric modules to HVAC system under cold climate operation*
9:30-9:45	W1.5 R.J. Mehta, et al. *Doped zinc oxide nanocrystal assemblies for thermoelectric waste heat scavenging*	W2.6 M. Winkler et al. *Sputtered n-type soft superlattices based on bi2Te3/(Bi,Sb)2Te3 created by nanoalloying*	W3.5 H. Schock, *Prospects for implementation of thermoelectric generators as waste heat recovery systems in class 8 truck applications*
9:45-10:00	W1.6 M. Ohtaki, et al. *Thermoelectric properties of ZnO with multinary doping*	W2.7 A. Peng, et al. *Synthesis and characterization of $Bi_{2-x}Sb_xTe_3$ quantum dots and their thermoelectric properties*	W3.6 J. Fairbanks, *Automotive thermoelectric generators and air conditioner/heaters*

10:00-10:30 Coffee Break, Governor's pre-function area

Wednesday Morning 10:30-12:00

	SESSION A **Governor's C** **Session W4:** **Micro/nanostructural Effects** *Chair: Akram Boukai*	SESSION B **Governor's D** **Session W5:** **Skutterudites III** *Chair: Jihui Yang*	SESSION C **Mackinac Room** **Session W6:** **Device Design/Fabrication I** *Chair: Ryoji Funahashi*
10:30-10:45	W4.1 K. Nielsch *Overview: German priority program on "Nanostructured Thermoelectric Materials"*	W5.1 X. Tang *Melt spinning-spark plasma sintering\: a novel approach to prepare high thermoelectric performance nanocomposties*	W6.1 D. Wesolowski et al *A high temperature, high vacuum compatible Bi_2Te_3-based thermoelectric module*
10:45-11:00	W4.2 J. He et al. *Probing the thermodynamics and microstructures of p-Bi_2Te_3 thermoelectric nanocomposites: a neutron scattering study*		W6.2 J. D'Angelo, et al. *Fabrication and characterization of half-Heusler and skutterudite thermoelectric power generation devices for waste heat recovery*
11:00-11:15	W4.3 I. Blum et al. *Atom-probe tomography of PbTe-based nanostructured thermoelectric materials*	W5.2 G. Rogl et al. *High pressure torsion (HPT): a new route to high ZTs?*	W6.3 H.-W. Lee *The advance of thermoelectric generation technology in Korea*
11:15-11:30	W4.4 T. Ikeda et al. *Nanostructure control and lattice thermal conductivities of PbTe-based materials*	W5.3 S.R. Sarath Kumar et al. *Thermoelectric properties of single phase $In_{0.2}Yb_{0.2}Co_4Sb_{12}$ thin films*	
11:30-11:45	W4.5 J.L. Lensch-Falk et al *Characterization of electrodeposited nano-crystalline Sb_2Te_3 films*	W5.4 K. Biswas et al. *Thermal cycling effects on the thermoelectric properties of n-type In, Ce based skutterudite compounds*	W6.4 S.-M. Choi et al. *A power generation test for oxide-based thermoelectric modules using p-type $Ca_3Co_4O_9$ and n-type $Ca_{0.9}Nd_{0.1}MnO_3$ legs*
11:45-12:00	W4.6 J.H. Hyung We, et al. *Evaluation of thermal conductivity of thin film thermoelectric materials prepared by screen printing technique*	W5.5 H. Li, et al. *Microstructure and phase transition of melt-spun $Yb_{0.2}Co_4Sb_{12}$ compound during pre-annealing process*	W6.5 J. Guo et al *Development of skutterudite thermoelectric materials and modules*

12:00-13:30 Lunch, Governor's AB

Wednesday Afternoon 13:30-15:00

	SESSION A **Governor's C** **Session W7:** **Novel Materials III: Organic** *Chair: Stephanie Brock*	SESSION B **Governor's D** **Session W8:** **More Silicides and Heuslers** *Chair: Ferdinand Poudeu*	SESSION C **Mackinac Room** **Session W9:** **Device Design/Fabrication II** *Chair: Jeff Sakamoto*
13:30-13:45	W7.1 G.-H. Kim, et al. *Thermoelectric measurements of pentacene thin films*	W8.1 F. Dynys, et al. *Thermoelectric materials for aeronautical power generation*	W9.1 T. Caillat et al *Advanced high temperature thermoelectric materials and components*
13:45-14:00	W7.2 A. Chamoire, et al. *Organic based semiconductor as thermoelectric material*	W8.2 V. Ponnambalam, et al. *Nowotny chimney-ladder structure compounds a potential thermoelectrics*	W9.2 T. Hogan, et al. *PECS processed thermoelectric materials and modules*
14:00-14:15	W7.3 N. Toshima et al, *Organic thermoelectric materials composed of conducting polymers and metal nanoparticles*	W8.3 J. Higgins et al. *Synthesis and thermoelectric properties of nanowires and bulk nanostructured manganese silicide ($MnSi_{1.75}$)*	W9.3 C. Caylor, et al. *High performance thermoelectric cooling modules based on advanced bulk nanosctructured materials*
14:15-14:30	W7.4 N. Gothard et al. *Quasi-one dimensional doped phthalocyanines for thermoelectric applications*	W8.4 A. Pokhrel et al. *Synthesis of bulk nanostructured higher manganese silicides for thermoelect,ric applications*	W9.4 J. Trujillo et al. *Metal-matrix nanocomposites with tailored coefficients of thermal expansion (CTE) for improved thermomechanical reliability of thermoelectric devices*
14:30-14:45	W7.5 Y. Du, et al. *Preparation and thermoelectric properties of polythiophene/multiwalled carbon nanotube composites*	W8.5 M. Schwall, et al. *Phase separation in Heusler compounds with C1b structure*	W9.5 D. Madan, et al. *Printed Se-doped n-type Bi_2Te_3 thick film thermoelectric generators*
14:45-15:00	W7.6 M.H. Check, et al. *Synthesis and characterization of fulleride materials*	W8.6 J. Shiomi et al. *Lattice thermal conductivity of half-Heusler compounds from first principle calculations*	W9.6 S.L. Li et al *Thermomechanical analysis of a thermoelectric module*

15:00-15:30 Coffee Break, Governor's pre-function area

Wednesday Afternoon 15:30-17:15

	SESSION A	SESSION B	SESSION C
	Governor's C Session W10: Clathrate Compounds *Chair: Peter Rogl*	**Governor's D Session W11: Bi_2Te_3 IV: More Bulk Nanostructured** *Chair: Jeff Dyck*	**Mackinac Room Session W12: Characterization III: Thermal** *Chair: Hsin Wang*
15:30-15:45	W10.1 D. Thompson et al. *Thermoelectric properties of type I clathrates ($Sr_8Ni_xGa_{14-x}Ge_{31}$)*	W11.1 W. Xie, et al. *High performance $(Bi,Sb)_2Te_3$ nanocomposite rapidly prepared by single element melt spinning combined with spark plasma sintering*	W12.1 H. Böttner et al. , *Transport properties of bulk thermoelectrics: report on recent international round-robin efforts*
15:45-16:00	W10.2 Z. Ye et al. *Synthesis and thermoelectric properties of Au-substituted type I clathrates*	W11.2 W.S. Liu et al. *Nanostructured thermoelectric materials $Cu_xBi_2(Te,Se,S)_3$*	W12.2 G. Pernot et al. *Thermal conductivity of thin films TbAs:InGAs measured using time domain thermoreflectance*
16:00-16:15	W10.3 Y. Grin *Atomic interactions and thermoelectric activity of intermetallic compounds*	W11.3 S. Sumithra et al. *Effect of NiTe nanoinclusions on thermoelectric properties of Bi_2Te_3*	W12.3 Y. Zhang et al. *Profiling local thermoelectric properties by a novel scanning thermal microscopy*
16:15-16:30		W11.4 R.P. Gupta et al. *Thermoelectric materials made from inorganic colloidal nanocrystals*	W12.4 D. Cederkrantz, et al. *A comparison between the laser flash method and the transient plane source technique for thermal conductivity measurements*
16:30-16:45	W10.4 P. Rogl *Clathrate type I thermoelectrics: $Ba_8M_xVacancy_y\{Ge,Si\}_{46-x-y}$ barium versus strontium compounds*	W11.5 C. Kim et al., *Synthesis of BiTe-type nanoparticles and study on their transport properties for ZT enhancement*	W12.5 R. McCarty et al., *Methodology for minimizing losses for Harman technique at high temperatures*
16:45-17:00	W10.5 X. Yan, et al. *Thermoelectric properties of type-I clathrates in the quaternary system Ba-Cu-Si-Ge*	W11.6 S.-S. Lin, et al. *Effect of electric current stressing on thermoelectric properties of Bi-Se-Te based nanostructure materials prepared by powder metallurgy*	W12.6 H. Lo and R.J. Ram, *Sub-micron mapping thermal conductivity of thermoelectric thin films*
17:00-17:15			W12.7 R.P. Bhatta et al. *Thermal conductivity of platinum and lead telluride microwires at 725 K by 3ω method*

19:00-21:30 Banquet, Governor's ABCD

Thursday Morning 8:15-10:00

	SESSION A **Governor's C** **Session H1:** **Novel Materials IV** *Chair: Thierry Caillat*	SESSION B **Governor's D** **Session H2:** **PbTe-Based** *Chair: Vladimir Jovovic*	SESSION C **Mackinac Room** **Session H3:** **Generators III** *Chair: Lon Bell*
8:15-8:30	H1.1 D. Moore et al. *$[(PbSe)_{1.16}]_m(TiSe_2)_n$ ferecrystals: interwoven semiconductors with designed nanoarchitecture and tunable properties*	H2.1 Jovovic et al. *High performing PbTe-based thermoelectric materials*	H3.1 B. Poudel et al. *Solar thermoelectric generators: electrical and thermal power cogeneration*
8:30-8:45		H2.2 J. Androulakis et al. *Interband scattering in p-type K and Na co-doped PbTe: the importance of a heavy effective mass*	H3.2 L. Miao et al. *Feasibility study on solar thermal power generation system by thermoelectric module installed at evacuated tubular collector with trough concentrator*
8:45-9:00	H1.2 M. Ohta, et al. *Thermoelectric properties of misfit layer sulfides $(LnS)_xCrS_2$ (Ln:La, Pr, Nd, Gd) prepared by CS_2 sulfurization*	H2.3 S. Girard et al. *Shape-controlled nanostructures and band structure engineering in PbTe-PbS thermoelectric materials doped with Na*	H3.3 A. Moser, et al. *Thermoelectric harvesting from transient ambient temperature gradients*
9:00-9:15	H1.3 C. Wan et al *TiS_2-based organic/inorganic superlattice as a thermoelectric material*	H2.4 G.J. Snyder *PbTe: better than we thought*	H3.4 A. Rezania and L.A. Rosendahl *A new configuration of the microchannels to reduce cooling power loss through heat sink*
9:15-9:30	H1.4 M. Beekman, et al. *Synthesis, structure, and electrical transport properties of $[(SnSe)_{1.04}]_m[MoSe_2]_n$ nanostructured intergrowths*		H3.5 Y. Sasaki et al. *Fluid directions on heat exchange in thermoelectric generator*
9:30-9:45	H1.5 M. Zhou et al. *Thermoelectric properties of Ni-intercalated $TiSe_{1.8}S_{0.2}$*	H2.5 Y. Pei and G.J. Snyder *High performance thermoelectric PbTe due to band structure complexity and nanostructures*	H3.6 K. Mizuno et al. *Development of a thermal buffering device to cope with temperature fluctuations for a thermoelectric power generator*
9:45-10:00	H1.6 E. Guilmeau et al. *Thermoelectric properties of layered Cu_xTiS_2 compounds*	H2.6 C.-I. Wu, et al. *Lead selenide based thermoelectric materials*	H3.7 C. Lertsatitthanakorn et al *Performance study of a double pass thermoelectric solar air collector with flat plate reflectors*

10:00-10:30 Coffee Break, Governor's pre-function area

Thursday Morning 10:30-12:00

	Governor's D **Plenary Awards Session** *Chair: Donald Morelli*
10:30-11:15	Young Investigator Award Talk Dr. Eric Toberer Colorado School of Mines *The Rise of Thermoelectric Zintl Compounds*
11:15-12:00	Outstanding Achievement in Thermoelectrics Award Talk Dr. Glen Slack Illinois Institute of Technology *Thermoelectric Properties of Bulk Materials – A History*

12:00-13:30 Lunch, Governor's AB

Thursday Afternoon 13:30-15:00

	SESSION A **Governor's C** **Session H4:** **Theory II** *Chair: Bhanu Mahanti*	SESSION B **Governor's D** **Session H5:** **Various Antimonides and Tellurides** *Chair: Jeff Sharp*	SESSION C **Michigan CD** **Session H6:** **Characterization IV/Synthesis** *Chair: Edgar Lara-Curzio*
13:30-13:45	H4.1 T. Takeuchi *Condition of electronic structure for practical thermoelectric materials*	H5.1 N. Ghafouri et al *Effect of substrates on co-evaporated Bi_2Te_3 and Sb_2Te_3 thin films*	H6.1 P. Majsztrik et al. *The effect of creep deformation on the microstructure and electrical resistivity of bismuth telluride*
13:45-14:00		H5.2 H. Takahashi et al. *High-mobility transport of $FeSb_2$ with ppm-level carrier concentration*	H6.2 D. Vasilevsky et al. *Thermoelectric and mechanical properties of novel hot extruded PbTe n-type material*
14:00-14:15	H4.2 S. Barabash et al. *Phonon softening and low thermal conductivity in cubic I-V-VI semiconductors*	H5.3 N. Nandihalli et al. *Thermoelectric property tuning via formation of nanocomposites based on $Mo_3Sb_{5.4}Te_{1.6}$ materials*	H6.3 M. Jaegle et al *Innovative characterization and optimization for thermoelectric thin films*
14:15-14:30	H4.3 J.W. Doak and C. Wolverton *Coherent phase stability of IV-VI rocksalt semiconductor alloys*	H5.4 C.-K. Huang et al. *Thermoelectric properties of La_3xTe_4-based materials synthesized by ball milling technique*	
14:30-14:45	H4.4 G.S. Pomrehn et al *Phase equilibria in thermoelectric zinc antimonides: a thermodynamic study from first principles*	H5.5 S.J. Limmer et al. *Electrochemical deposition of $Bi_2(Te,Se)_3$ nanowire arrays on silicon*	H6.4 S.H. Sadat et al. *Nanoscale thermometry using point contact thermocouples*
14:45-15:00	H4.5 R. Yu, et al. *Molecular dynamics simulation of the mechanical properties of Mg_2Si*	H5.6 D.-B. Xiong, et al. *Microstructures and thermoelectric properties of nanostructured Mn-doped zinc antimonides*	H6.5 A. LaLonde, et al. *Rapid consolidation of powdered materials by induction hot pressing*

POSTERS

ICT Sorting Category: A1: theoretical study of bulk materials

P1. Bulk modulus and band structure of group IV and group VI doped ternary PbTe alloys by first principles
Ashoka Bali and Ramesh Chandra Mallik
Thermoelectric Materials and Device Laboratory, Department of Physics, Indian Institute of Science, Bangalore, 560 012, India

P2. Search for resonant scatterers in bismuth and bismuth antimony alloys - first principles study
Bartlomiej Wiendlocha[1,2], Hyungyu Jin[1], Janusz Tobola[2], Stanislaw Kaprzyk[2], Joseph P. Heremans[1,3]
[1]Department of Mechanical and Aerospace Engineering, Ohio State University, Columbus, Ohio 43210, USA; [2]Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Al. Mickiewicza 30, 30-059 Cracow, Poland; [3]Department of Physics, Ohio State University, Columbus, Ohio 43210, USA

P3. Ab initio calculation of elastic constants and deformation potentials of $CoSb_3$
A. Zhou, L. S. Liu, C. C. Shu, P. C. Zhai
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, China

P4. Electronic structures and transport properties of double filled $CoSb_3$: a theory study
Cui-Cui Shu, An Zhou, Li-Sheng Liu, and Peng-Cheng Zhai
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China

P5. A close look inside the Mott relation: its validity, limitations and potential
Yibin Gao[1], G. Jeffrey Snyder[2], and Joseph P Heremans[1,3]
[1]Department of Mechanical and Aerospace Engineering, Ohio State University, Columbus, Ohio 43210; [2]California Institute of Technology, Pasadena, California;
[3]Department of Physics, Ohio State University, Columbus, Ohio 43210

P6. Thermoelectric properties of isoelectronic, highly mismatched alloys
Joo-Hyoung Lee and Jeffrey C. Grossman
Department of Materials Science and Engineering, Massachusetts Institute of Technology

P7. Molecular dynamics study on bulk β-Zn_4Sb_3 mechanical properties: vacancy and temperature effects
Guodong Li, Yao Li, Xuqiu Yang, An Zhou, Lisheng Liu and Pengcheng Zhai
State Key Laboratory of Advanced Technology of Materials Synthesis and Processing, Wuhan University of Technology

P8. Effect of magnetic and nonmagnetic dopants on electron transport properties in Mg_2(Si-Sn) and Mg_2(Si-Ge) from electronic structure calculations
Piotr Zwolenski, Janusz Tobola and Stanislaw Kaprzyk
Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Cracow, Poland

ICT Sorting Category: A2: nanoscale and low-dimension induced effects

P9. Unstructured-grid-based MC simulations of phonon transport at nanoscale
Mei-Jiau Huang
Mechanical Engineering Department, National Taiwan University

P10. Large enhancement of the thermoelectric figure of merit in a nanostructured quantum well
Avto Tavkhelidze
Tbilisi State University, Chavchavadze Avenue 13, Tbilisi 0179, Georgia

P11. Thermoelectric effects on micro- and nano-scale
S.V. Ordin and W.N. Wang
[1]Physico-Technical Institute of A.F. Ioffe of the Russian Academy of Sciences, St. Petersburg, [2]Bath University, Great Britain

P12. MonteCarlo study of the strained Si/Si_xGe_{1-x} superlattice with the ballistic electron transport and the phonon-phonon scatterings algorithms
Sangho Kim
Department of Electrical and Computer Engineering, University of Wisconsin at Madison

P13. Transport-coefficient dependence of current-induced cooling effect in a two-dimensional electron gas
Naomi Hirayama[1], Akira Endo[2], Kazuhiro Fujita[2], Yasuhiro Hasegawa[3], Naomichi Hatano[1], Hiroaki Nakamura[4], Ryōen Shirasaki[5] and Kenji Yonemitsu[6]
[1]IIS, U. Tokyo, [2]ISSP, U. Tokyo, [3]Saitama U., [4]NIFS, [5]Yokohama National U., [6]IMS

P14. Influence of ZnO inclusions on the transport properties of $CoSb_3$
C. Chubilleau[1], B. Lenoir[1], P. Masschelein[1], A. Dauscher[1], C. Godart[2]
[1]Institut Jean Lamour, UMR 7198, UMR 7198 CNRS - Nancy-Université - UPV-Metz, Département Chimie et Physique des Solides et des Surfaces, Ecole Nationale Supérieure des Mines de Nancy, Parc de Saurupt, F-54042 NANCY Cedex, France, [2]ICMPE- CMTR, CNRS-UMR 7182, 2-8, rue H. Dunant, 94320 THIAIS, France

P15. Switching effect in transverse thermopower in Bi microwires
L. A. Konopko[1,2], T. E. Huber[3] and A. A. Nikolaeva[1,2]
[1]Institute of Electronic Engineering and Nanotechnologies, Academy of Sciences of Moldova, Chisinau, MD-2028, Moldova; [2]International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw 53-421, Poland; [3]Howard University, 500 College St. N.W., Washington, DC 20059, USA

P16. Electrical resistance in PbTe quantum wires
Sitangshu Bhattacharya[1] and Ramesh Chandra Mallik[2]
[1]Nanoscale Device Research Laboratory, Center for Electronics Design and Technology, Indian Institute of Science, Bangalore, 560 012, India; [2]Thermoelectric Materials and Device Laboratory, Department of Physics, Indian Institute of Science, Bangalore 560 012, India

P17. Overcoming the challenges of non-uniform electrochemical currents to control compositional uniformity during the synthesis of $Bi_{1-x}Sb_x$ nanowire arrays
W. G. Yelton[1], S. J. Limmer[1], M.P. Siegal[1], D. L. Medlin[2], J. L. Lensch-Falk[2], and D. L. Overmyer[1]
[1]Sandia National Laboratories, Albuquerque, NM; [2]Sandia National Laboratories, Livermore, CA

ICT Sorting Category: A3: novel concepts and related physical phenomenon

P18. Narrow "d"and "f" band metals for improved thermoelectric and/or magnetothermoelectric performance
C. F. Gallo, Jason Wozniak and Brian Seaver
Superconix, Inc.

P19. Thermomagnetic effect in the quantum hall system
Ryōen Shirasaki[1], Akira Endo[2], Naomichi Hatano[3], and Hiroaki Nakamura[4]
[1]Yokohama National U., [2]ISSP, U. Tokyo, [3]IIS, U. Tokyo, [4]NIFS

P20. Giant electrocaloric effect in ferroelectric polymers and their applications for high efficiency cooling devices
Q. M. Zhang[1], S. G. Lu[1], Xinyu Li[1], Haiming Gu[1], Minren Lin[1], Xiaoshi Qian[1], J. P. Cheng1, Ailen Cheng[2], Greg Nellis[3], and Brent Craven[4]
[1]Electrical Engineering Department and Materials Research Institute, The Pennsylvania State University
[2]Strategic Polymer Sciences Inc. State College, PA
[3]Department of Mechanical Engineering, University of Wisconsin, Madison
[4]Applied Research Laboratory, The Pennsylvania State University and
Electrical Engineering Department and Materials Research Institute
The Pennsylvania State University

ICT Sorting Category: B1: skutterudites

P21. The role of $FeSb_2$ and $NbSb_2$ in the stability of $Mm_{0.86}Fe_{3.5}Co_{0.5}Sb_{12}$ skutterudites
L. Zhang, D. Morelli and J. Sakamoto
Department of Chemical Engineering and Materials Science, Michigan State University, East Lansing, MI 48824

P22. High-temperature stability of thermoelectric skutterudite $In_{0.25}Co_3FeSb_{12}$
Kwan-Ho Park and Il-Ho Kim
Department of Materials Science and Engineering/RIC-ReSEM, Chungju National University, 50 Daehangno, Chungju, Chungbuk 380-702, Korea

P23. Structural and electrical properties of thermoelectric CoSb3 thin films with different composition and thickness
M. Daniel, C. Brombacher, G. Beddies, and M. Albrecht
Institute of Physics, Chemnitz University of Technology, D-09107, Germany

P24. Low thermal conductivity and enhanced thermoelectric performance in the $Ca_{0.5}Ce_{0.5}Fe_{4-x}Ni_xSb_{12}$ skutterudites
Gangjian Tan, Han Li, Yonggao Yan, Xinfeng Tang
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 40070, China

P25. Ab initio study of p-type IFe_4Sb_{12} (I = Na, K, Ca, Sr, Ba, La, Ce, Pr, and Yb)
J. Yang, P. Qiu, R. Liu, L. Xi, W. Zhang, and L. Chen
State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences

P26. Residual strength degradation model for low cycle fatigue of $CoSb_3$ Skutterudites compounds
Zhong-wei Ruan[1], Li-sheng-Liu[2], Peng-cheng Zhai[2], Peng-fei Wen[1], and Qing-jie Zhang[2]
[1]Department of Engineering Structure and Mechanics, Wuhan University of Technology, Wuhan 430070, China;
[2]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China

P27. Effect of In impurity on thermoelectric properties of Ba and In double-filled skutterudite materials
Xuan Yang, Wenyu Zhao, Ping Wei,Jian Yu, Hua Zhou and Qingjie Zhang
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing,
Wuhan University of Technology

P28. Effect of addition of alumina nanoparticles on thermoelectric properties of La-filled skutterudite $CoSb_3$ compounds
Masaki Matsuhara[1] and Takashi Itoh[2]
[1]Department of Materials Science and Engineering, Nagoya University
[2]EcoTopia Science Institute, Nagoya University

P29. Thermoelectric properties of trisubstituted skutterudite Co4Sb11Ge1-x-yTexSey compounds
Bo Duan, PengCheng Zhai, LiSheng Liu
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing,Wuhan University of Technology

P30. Effect of Excessive Sb on Thermoelectric Properties of p-Type Ba and In Double-filled Iron-based Skutterudite Materials
Jian Yu, Wenyu Zhao, Ping Wei, Hua Zhou and Qingjie Zhang
State key laboratory of advanced technology for materials synthesis and processing, Wuhan University of Technology

P31. Development of highly efficient n-type skutterudites
G Rogl[1,2], A Grytsiv[1], N Melnychenko-Koblynk[1], E Bauer[2] and P Rogl[1]
[1]Institute of Physical Chemistry, University of Vienna,
[2]Institute of Solid State Physics, University of Technology, Wien, Austria

ICT Sorting Category: B2: oxides

P32. Textured thermoelectric oxides prepared by rapid sintering
J. Khaliq[1], H. Yan[1], K. Simpson2, M.J. Reece[1]
[1]School of Engineering and Materials Science, and Nanoforce Technology Limited, Queen Mary University of London, Mile End Road, London, E1 4NS, UK; [2]European Thermodynamics, 8 Priory Business Park, Kibworth, Leicester LE8 0RX, UK.

P33. Improved thermoelectric properties of $Ca_{0.98}RE_{0.02}MnO_{3-d}$ (RE = Sm, Gd and Dy)
Chia-Jyi Liu, Ankam Bhaskar and J. J. Yuan
Department of Physics, National Changhua University of Education, Changhua 500, Taiwan

P34. Microstructural analysis and high temperature thermoelectric properties of Fe-, Zr-, and Ba-doped calcium cobaltite (CCO-349) thin films
Ryan D. Snyder[1], Evan L. Thomas[2], Xueyan Song[3], Betty T. Quinton[1], Song Chen[3], Steven M. Goodrich[4], Mary L. Galaska[4], Winnie Wong-Ng[5] and Paul N. Barnes[6]
[1]Air Force Research Laboratory/RZPG, WPAFB, 2645 Fifth Street, Wright-Patterson Air Force Base, OH 45433-7919; [2]University of Dayton Research Institute/Air Force Research Laboratory-WPAFB, Metals and Ceramics Division, 300 College Park, Dayton, OH 45469-0073; [3]Department of Mechanical and Aerospace Engineering, West Virginia University, Engineering Sciences Bldg. Room 537, Evansdale Dr., Morgantown, WV 26506-6106; [4]University of Dayton Research Institute, Metals and Ceramics Division, 300 College Park, Dayton, OH 45469; [5]National Institute of Standards and Technology, Ceramics Division, 100 Bureau Dr. MS 8520, Gaithersburg, MD 20899-5820; [6]Army Research Laboratory, Power Components, 2800 Powder Mill Rd., Adelphi, MD 20783

P35. Exfoliation of thermoelectric cobalt oxide by soft chemical method
J.Y. Kim, J.I. Kim, and W.S. Seo
Korea Institute of Ceramic Engineering and Technology

P36. Thermoelectric properties of electron-doped $SrMnO_3$ single crystal with cubic perovskite structure
T. Suzuki[1], H. Sakai[1], Y. Taguchi[1,2], and Y. Tokura[1,2,3,4]
[1]CMRG RIKEN, [2]CERG RIKEN, [3]Univ. of Tokyo, [4]ERATO-MF

P37. Improvement of electrical contact between TE material and Ni electrode interface by application of a buffer layer
Koya Arai[1], Masanori Matsubara[1], Tatsuya Sakamoto[1], Tohru Kineri[2], Yasuo Kogo[1], Tsutomu Iida[1] and Keishi Nishio[1]
[1]Department of Material Science and Technology, Tokyo University of Science; [2]Department of Applied Chemistry, Tokyo University of Science, Yamaguchi

P38. The fabrication of high performance polycrystalline $Ca_3Co_4O_9$ using conventional sintering process
O-Jong Kwon[1], Wook Jo[2], Jae-Yeol Kim[1], Hyunwoo Yoo[1,3], Jin-Sang Kim[3], Kyeongdal Choi[4], Chan Park[1]
[1]Seoul National University, [2]Technische Universität Darmstadt; [3]Korea Institute of Science and Technology; [4]Korea Polytechnic University

P39. Thermoelectric and electrical properties of $Li_{0.5-x}Zn_xRh_2O_4$
Yuuta Nakamura and Hiroshi Irie
Univ. of Yamanashi

P40. Synthesis and growth mechanism of single-phase $SrTiO_3$ nanocubes for thermoelectric materials
Nam-Hee Park[1], Yifeng Wang[1], Chunlei Wan[1,2] and Kunihito Koumoto[1,2]
[1]Graduate School of Engineering, Nagoya University, Nagoya 464-8603, Japan; [2]CREST, Japan Science and Technology Agency, Tokyo 102-0075, Japan

P41. Microstructure and thermoelectric properties of misfit-layered cobalt oxides with metallic nanoinclusions prepared by a printing technique
Ngo Van Nong, Alfred Junio Samson, Nini Pryds and Søren Linderoth
Fuel Cells and Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, Denmark Technical University, 4000 Roskilde, Denmark

P42. Microstructures and thermoelectric properties of sintered $Ca_3Co_4O_9$-based oxide
Takao Morimura, Masayuki Hasaka, Shin-ichiro Kondo, Hiromichi Nakashima
Graduate School of Engineering, Nagasaki University

P43. Transport and thermoelectric properties LCuO-Sr polycrystalline ceramics
J. E. Rodríguez
Department of Physics, Universidad Nacional de Colombia

P44. Thermoelectric properties of Niobium doped Strontium Titanate thin films
S.R. Sarath Kumar, and H.N. Alshareef
King Abdullah University of Science and Technology

ICT Sorting Category: B3: silicides & Heusler compounds

P45. Solid-state synthesis and thermoelectric properties of Al-doped Mg_2Si
Hyung Jin Lee[1], Yong Rae Cho[1], Sin-Wook You[2] and Il-Ho Kim[2]
[1]SK Lubricants Technology Center, Daejon, Korea
[2]Department of Materials Science and Engineering/RIC-ReSEM, Chungju National University, Chungju, Korea

P46. Synthesis of bulk nanostructured higher manganese silicides for thermoelectric applications
Ankit Pokhrel[1], Jeremy Higgins[1], Annie Weathers[2], Arden L. Moore[2], Li Shi,[2, 3] and Song Jin[1]
[1]Department of Chemistry, University of Wisconsin – Madison
[2] Department of Mechanical Engineering, The University of Texas at Austin
[3]Materials Science and Engineering Program, Texas Materials Institute, The University of Texas at Austin

P47. The effects of heavy element substitution on electric structure and lattice thermal conductivity of Fe_2VAl thermoelectric material
Yuichi Terazawa[1], Masashi Mikami[2], Tsunehiro Takeuchi[1, 3]
[1]Department of Crystalline Materials Science, Nagoya University
[2]National Institute of Advanced Industrial Science and Technology, Materials Research Institute for Sustainable Development, Nagoya
[3]EcoTopia Science Institute, Nagoya University

P48. The study on thermoelectric performance in $Mg_2Si_{0.5}Ge_{0.5}$ by Sb, La co-doping

Xiaoyuan Zhou[1], Guoyu Wang[1], Xianli Su[1,3], Hang Chi[1], James R. Salvador[2], Wei Liu[3],Xinfeng Tang[3] and Ctirad Uher[1]
[1]Department of Physics, University of Michigan
[2]Chemical Sciences and Materials Systems Laboratory, GM Global Research
[3]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

P49. Thermoelectric properties of Sn-based half-Heusler nanocomposites

Dexuan Huo, Luobing Liao, Shaopeng Cui, Weitao Su, and Lingwei Li
Institute of Materials Physics, Hangzhou Dianzi University, Hangzhou, China

P50. Improved thermoelectric properties of higher manganese silicide $Mn_{1-x}Re_xSi_{1.80}$ by doping Re on Mn site

Wenhui Luo, Wenjie Xie, Fan Fu, Xinfeng Tang
State Key Laboratory of Advanced Technology for Material Synthesis and Processing, Wuhan University of Technology

P51. Cold-pressing synthesis and thermoelectric properties of higher manganese silicides for waste heat recovery

Xi Chen, Jianshi Zhou, Li Shi
Texas Materials Institute, the University of Texas at Austin

P52. Doping effects on figure of merits in a Mg_2Sn System

Soon-Mok Choi[1], Il-Ho Kim[2], Sun-Uk Kim[3], Won-Seon Seo[1], Tae-Ho An[1,4], and Chan Park[4]
[1]Green Ceramics Division, Korea Institute of Ceramic Engineering and Technology (KICET), Seoul, Republic of Korea
[2]Department of Material Science and Engineering, Chung-ju National University, Chung-buk, Republic of Korea
[3]Functional Materials Research Department, Research Institute of Industrial Science and Technology (RIST), Pohang, Republic of Korea
[4]School of Materials Science and Engineering, Seoul National University, Republic of Korea

P53. The use of transition metal silicides to reduce the contact resistance between the electrode and sintered n-type Mg_2Si

T. Sakamoto, T. Iida, Y. Honda, M. Tada, T. Sekiguchi, K. Nishio, Y. Kogo, and Y. Takanashi
Department of Materials Science and Technology, Tokyo University of Science

P54. Effects of Ru substitution for Mn in the Si_2Ti-type Al-Mn-Si alloy

Akio Yamamoto[1], Tsunehiro Takeuchi[1,2]
[1]Department of Crystalline Materials Science, Nagoya University
[2]EcoTopia Science Institute, Nagoya University

P55. Development of Higher Manganese Silicide for Thermoelectric Applications

Y. Sadia and Y. Gelbstein
Ben Gurion University of the Negev, Israel

P56. Thermoelectric Properties of Mg_2Si Based Compounds Synthesized Using Magnesium Alloy

Kento Hagio[1] and Takashi Itoh[2]
[1]Department of Materials Science and Engineering, Nagoya University
[2]EcoTopia Science Institute, Nagoya University

P57. Thermoelectric properties of off-stoichiometric Ti-Ni-Sn half-Heusler systems

Hirofumi Hazama, Masato Matsubara, Ryoji Asahi
Toyota Central R&D Labs., Inc.

P58. Large Seebeck Coefficients of Protonated Titanate Nanotubes for High-Temperature Thermoelectric Conversion

L. Miao[1], S. Tanemura[2], R. Huang[3], C.Y.Liu[1], C.M.Huang[1], and G. Xu[1]
[1]Key Laboratory for Renewable Energy and Gas Hydrates, Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences; [2] Nanostructures Research Laboratory, Japan Fine Ceramics Center; [3]Key Laboratory of Polarized Materials and Devices, Ministry of Education, East China Normal University

P59. Structure and thermoelectric properties of MgAgSb

Alan J Thompson[1], Jeff W Sharp[1], Moreira Dos Santos[2], Melanie J Kirkham[2], and Claudia J Rawn[2]
[1]Marlow Industries Inc. a subsidiary of II-VI Inc Dallas, Texas 75238, USA
[2]Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

P60. Effects of Ge/Cr Doping on the Thermoelectric Properties of Higher Manganese Silicides

Y. J. Shi, Q. M. Lu, X. Zhang, J. X. Zhang, G. Liu
Key Lab. of Advanced Functional Materials, Ministry of Education, College of Materials Science and Engineering, Beijing University of Technology

P61. Thermoelectric properties of $Mg_2Si_{0.5-x}(GaSb)_xSn_{0.5}$ ($0 \le x \le 0.1$)

Z. L. Du, T. J. Zhu, X. B. Zhao
Univ. of Zhejiang

P62. Low-temperature Thermoelectric Properties of Fe_2VAl with Partial Cobalt Doping

Chang Liu, Eric Skoug and Donald Morelli
Department of Chemical Engineering and Materials Science, Michigan State University,

ICT Sorting Category: B4: clathrates & zintl compounds

P63. Synthesis, structural characteristics, and thermoelectric properties of type I clathrates $A_8Zn_{18}As_{28}$ (A = K, Rb, Cs) and $Cs_8Cd_{18}As_{28}$

Hua He and Svilen Bobev
Department of Chemistry and Biochemistry, University of Delaware

P64. Preparation and thermoelectric properties of $BaMn_{2-x}Zn_xSb_2$ Zintl compounds

H. F. Wang, K. F. Cai
Tongji University, Functional Materials Research Laboratory, Shanghai, China

P65. Thermoelectric properties of type-I clathrates in the quaternary system Ba-Cu-Si-Ge

X. Yan,[1,2] E. Bauer,[1] P. Rogl,[2] and S. Paschen[1,3]
[1]Institute of Solid State Physics, Vienna University of Technology
[2]Institute of Physical Chemistry, University of Vienna

P66. Study of host atom structures and electronic structures of Sb or Al doped Type-VIII $Ba_8Ga_{16}Sn_{30}$ clathrates

Yasushi Kono[1,2], Koji Akai[3], Hiroshi Nozaki[4], Nobuyuki Ohya[1], Takashi Taguchi[1], Shukang Deng[5], Yuhta Saiga[5], Toshiro Takabatake[5], and Setsuo Yamamoto[2]
[1]Denso Corporation Research Laboratories, Minamiyama
[2]Graduate School of Science and Engineering, Yamaguchi University
[3]Media and Information Technology Center, Yamaguchi University
[4]Toyota Central R&D Labs., Inc
[5]Department of Quantum Matter, ADSM, Hiroshima University

P67. Thermoelectric properties of Ba8Ga16Ge30 clathrate with TiO2 nanoinclusions

R. Heijl[1], D. Cederkrantz[1], M. Nygren[2], and A. E. C. Palmqvist[1]
[1]Department of Chemical and Biological Engineering, Chalmers University of Technology
[2]Department of Inorganic Chemistry, Arrhenius Laboratory, Stockholm University

P68. Effects of host atom vacancies on electronic structure and thermoelectric properties in type-VIII Sn-clathrate $Ba_8Ga_{16}Sn_{30}$
K. Akai[1],K. Kishimoto[2], Y. Kono[2,3], T. Koyanagi[2] and S. Yamamoto[2]
[1]MITC, Yamaguchi University
[2]Graduate School of Science and Engineering, Yamaguchi University
[3]Denso Corporation Research Lab

P69. Type-VIII clathrate $Ba_8Ga_{16}Sn_{30}$ doped with Cu: A high-performance thermoelectric material for intermediate-temperature application
Yuta Saiga[1], Shukang Deng[1,2], Kousuke Kajisa[1], and Toshiro Takabatake[1,3]
[1]Department of Quantum Matter, ADSM and [3]IAMR, Hiroshima University
[2]Education Ministry Key Laboratory of Renewable Energy Advanced Materials and Manufacturing Technology, Yunan Normal University

P70. Thermoelectric and magnetic properties of Ce Doped $Yb_{14}MnSb_{11}$
Jason H. Grebenkemper, Jennifer Karolewski, John H. Roudebush, Tanghong Yi, and Susan M. Kauzlarich
Department of Chemistry, University of California-Davis

P71. Crystal structure, chemical bonding and thermoelectric properties of the p-type clathrate - I $Ba_8Au_{5.3}Ge_{40.7}$
H. Zhang[1,2], C. Candolfi[1], H. Borrmann[1], N. Oeschler[1], W. Schnelle[1],
I. Veremchuk[1], M. Schmidt[1], U. Burkhardt[1], M. Baitinger[1], J. T. Zhao[2], and Yu. Grin[1]
[1]Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden
[2]Key Laboratory of Transparent Opto-Functional Inorganic Materials of
Chinese Academy of Sciences, Shanghai Institute of Ceramics

P72. Different physical properties in n/p- $Ba_8Ga_{16}Ge_{30}$
Jingtao Xu[1], Jiazhen Wu[2], Satoshi Heguri[2], Tanabe Yoichi[1], Gang Mu[2], Jun Tang[3], and Katsumi Tanigaki[1,2]
[1]WPI AIMR, Tohoku University
[2]Department of Physics, Tohoku University
[3]Department of Physics, Sichuan University

ICT Sorting Category: B5: antimonides & tellurides

P73. Thermoelectric properties of $Bi_{85}Sb_{15-x}Pb_x$ prepared by high-pressure sintering
Song Chunmei[1], Fan Lilue[1], Huang Rongjin[2], Gong Linghui[2], Li Laifeng[2]
[1]Department of Physics, Zunyi Normal College
[2]Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

P74. Thermoelectric performance of p-type BiSbTe/Zn_4Sb_3 composites prepared by zone melting
Ting Zhang, Jun Jiang, Qiushi Zhang, Yukun Xiao, Wei Li, and Gaojie Xu
Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences

P75. Characterization of the thermoelectric properties of electrodeposited thin films of telluride compounds
Yi Ma[1], Waruna Wijesekara[1], Elisabet Ahlberg[2], Ye Sun[3], Bo Brummerstedt Iversen[3], and Anders E. C. Palmqvist[1]
[1]Dept. of Chemical and Biological Engineering, Chalmers University of Technology [2]Dept. of Chemistry, University of Gothenburg
[3]Dept. of Chemistry and iNano, Aarhus University

P76. Withdrawn

P77. Improvement of ZT and mechanical strength in p- and n-type PbTe
Qinyong Zhang[1], Weishu Liu[1], Qian Zhang[1], Hui Wang[1], Bo Yu[1], Hengzhi Wang[1], Dezhi Wang[1], M. S. Dresselhaus[3], Gang Chen[2], and Zhifeng Ren[1]
[1]Department of Physics, Boston College
[2]Department of Mechanical Engineering, Massachusetts Institute of Technology
[3]Department of Physics and Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology

P78. Thermopower gradient in $PtSb_2$ single crystal
Martin Søndergaard, Mogens Christensen and Bo B. Iversen
Centre for Energy Materials and Centre for Materials Crystallography, Department of Chemistry and iNANO, University of Aarhus

P79. Nanostructure, excitations, and thermoelectric properties of Bi_2Te_3 based nanomaterials
N. Peranio[1], O. Eibl[1], W. Töllner[2], D. Bessas[2], M. Winkler[2], J. König[2], A. Hashibon[2], V. Pacheco[2], K. Nielsch[2], R. Hermann[2], H. Böttner[2], C. Elsässer[2], and J. Schmidt[2]
[1]Institut für Angewandte Physik, Eberhard Karls Universität Tübingen
[2]For affiliation see other contributions of this author

P80. Effect of nano-ZrW_2O_8 on the thermoelectric properties of $Bi_{85}Sb_{15}$/ ZrW_2O_8 composites
Min Zhou, Zhen Chen, Xinxin Chu, and Laifeng Li
The Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

P81. Thermoelectric performance of p-type Bi-Sb-Sn materials prepared by pressureless sintering
Zhen Chen[1, 2], Min Zhou[1], Rongjin Huang[1], Chunmei Song[3], Yuan Zhou[1] and Laifeng Li[1]
[1]The Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences
[2]Graduate University of Chinese Academy of Sciences
[3]Department of Physics, Zunyi Normal College

P82. The effect of n-type Bi_2Te_3 particles synthesized by electrochemical methods on the thermoelectric properties of Bi_2Te_3 based nanocomposites
Wen-Jin Li, Way-ling Yu, Chia-Ying Yen and Hsin-Hwa Chen
Industrial Technology Research Institute

P83. Thermoelectric properties of $TlGdTe_2$ and Tl_9GdTe_6
C. R. Sankar, S. Bangarigadu-Sanasy and H. Kleinke
Department of Chemistry, University of Waterloo

P84. Reduced thermal conductivity in vacancy compounds of thermoelectric materials
Hao Yang and Donald T. Morelli
Michigan State University

P85. Single crystal growth of Bi-Sb-Te thermoelectric materials by halide chemical vapor transport technique
Mikio Koyano, Junya Tanaka, Koichiro Suekuni and Tomoki Ariga
School of Materials Science, Japan Advanced Institute of Science and Technology

P86. Thermoelectric properties of Cd doped p-type bismuth antimony telluride films
Kwang-Chon Kim[1,2], Hyun woo You[3], Won Chel Choi[1], Hyun Jae Kim[2], Jin-Sang Kim[1]
[1]Electronic Materials Center, Korea Institute of Science and Technology
[2]School of Electrical and Electronic Engineering, Yonsei University
[3]Department of Materials Science and Engineering, Seoul National University

P87. Synthesis of Bi-Sb-Te thermoelectric powder by an oxide-reduction process
Gil-Geun Lee[1] and Gook-Hyun Ha[2]
[1]Pukyong National University
[2]Korea Institute of Materials Science

P88. Thermoelectric properties of $Bi_{0.5}Sb_{1.5}Te_3$ sintered body fabricated by mechanical milling and spark plasma sintering processes

Gil-Geun Lee[1] and Gook-Hyun Ha[2]
[1]Pukyong National University
[2]Korea Institute of Materials Science

P89. Thermoelectric properties of Mn doped Cu_2SnSe_3 and Cu_3SbSe_4 compounds

Xu Lu[1] and Donald Morelli[1, 2]
[1]Deparment of Physics & Astronomy, Michigan State University
[2]Deparment of Chemical Engineering & Material Science, Michigan State University

P90. Thermoelectric properties of Na and K doped PbTe-PbSe

R. Korkosz[1], J. Androulakis[1], and M.G. Kanatzidis[1,2]
[1]Department of Chemistry, Northwestern University
[2]Materials Science Division, Argonne National Laboratory

P91. Reevaluation of $PbTe_{1-x}I_x$ as high performance n-type thermoelectric material

Aaron LaLonde, Yanzhong Pei, and Jeff Snyder
California Institute of Technology

P92. The effect of annealing in controlled vapor pressure on the thermoelectric properties of rf sputtered Bi_2Te_3 film

Hyo-Jung Kim[1,2], Ju-Hyuk Yim[2,3], Won Chel Choi[2], Chan Park[1,4] and Jin-Sang Kim[2]
[1]Department of Material Science and Engineering, Seoul National University
[2]Electronic Materials Center, Korea Institute of Science and Technology
[3]School of Electrical and Engineering, Yonsei University
[4]Research Institute of Advanced Materials, Seoul National University

P93. Local structural characterization of thermoelectric LAST-m material ($AgPb_mSbTe_{2+m}$, m = 6, 10 and 18)

P. Bauer Pereira[1,2], S. Perlt[3] , T. Höche[3] , J. Dadda[4], E. Müller[4], Raphaël P. Hermann[1,2]
[1]Jülich Centre for Neutron Science JCNS and Peter Grünberg Institute
[2]Faculté des Sciences, Université de Liège
[3]Leibniz Institute of Surface Modification (IOM)
[4]Deutsches Zentrum für Luft- und Raumfahrt, Institut für Werkstoff-Forschung, Thermoelektrische Materialien und Systeme

P94. Thermoelectric characteristics of nanostructured $(Bi,Sb)_2Te_3$ bulks processed with nanodispersion

Y. H. Yeo, M. Y. Kim, J. Y. Choi, B. K. Yoo and T. S. Oh
Department of Materials Science and Engineering, Hongik University

P95. Effects of nanopowder dispersion on thermoelectric characteristics of n-type $Bi_2(Te,Se)_3$ nanocomposites

M. R. Noh, D. H. Park, M. Y. Kim and T. S. Oh
Department of Materials Science and Engineering, Hongik University

P96. The effects of Hg-doping on electrical properties in n-type Bi_2Te_3 films deposited by MOCVD

HyunWoo You[1,2], Kwang-Chon Kima3, Chan Park[2,4], and Jin-Sang Kima[1]
[1]Electronic Materials Center, Korea Institute of Science and Technology
[2]Department of Materials Science and Engineering, Seoul National University
[3]School of Electrical and Engineering, Yonsei University
[4]Research Institute of Advanced Materials, Seoul National University

P97. Thermoelectric properties of $PbBi_2Te_4$ bulk with nano structure
Young-Jae Lee[1], Jae-Yeol Kim[1], Ju-Hyuk Yim[2], O-Jong Kwon[1], Seunghyun Ahn[1], Jin-Sang Kim[2] and Chan Park[1,3]
[1]Department of Materials Science & Engineering, Seoul National University
[2]Department of Electronic Materials Center, Korea Institute of Science and Technology, [3]Research Institute of Advanced Materials, Seoul National University

P98. PbTe valence band structure tuning through doping
Z.M. Gibbs[1], Y. Pei[2], W. A. Goddard[3], G. J. Snyder[2]
California Institute of Technology, Departments of [1]Chemical Engineering, [2]Materials Science, and [3]Chemistry

P99. Synthesis and thermoelectric properties of Al_2O_3-dispersed Bi_2Te_3 matrix nanocomposite powders
Kyung Tae Kim and Gook Hyun Ha
Korea Institute of Materials Science

P100. Thermoelectric properties optimization of thermally co-evaporated p-type $(Bi_{0.25}Sb_{0.75})_2Te_3$ thin films
Niloufar Ghafouri[1], Rebecca L. Peterson[1], Ctirad Uher[2], and Khalil Najafi[1]
[1]Department of Electrical Engineering and Computer Science, University of Michigan
[2]Department of Physics, University of Michigan

P101. Thermoelectric properties of melt-spun Zn_xSb_3 ribbons
Masayuki Hasaka, Takao Morimura, and Hiromiti Nakashima
Graduate School of Engineering, Nagasaki University

P102. Synthesis and formation of highly oriented In_2Te_3 nanostructures in bulk Bi_2Te_3
Nicholas A. Heinz[1], Teruyuki Ikeda[2,1], and G. Jeffrey Snyder[1]
[1]California Institute of Technology
[2]PRESTO, Japan Science and Technology Agency

P103. Transport properties of $Bi_{1-x}Sb_x$ (x= 0.05 to 0.30) single crystals
C. F. Desai, M. P. Jani and P. H. Soni
Physics Department, Faculty of Science, The M. S. University of Baroda

P104. Knoop microhardness of $Bi_{1-x}Sb_x$ (x= 0.05 to 0.30) crystals
Maunik Jani, P. H. Soni and C. F. Desai
Department of Physics, Faculty of Science, The M. S. University of Baroda,

P105. Facial fabrication and thermoelectric properties of Bi_2Te_3-reduced graphene oxide nanocomposites
Y.Y. Wang, K. F. Cai, X. Yao
Tongji University, Functional Materials Research Laboratory

P106. Thermoelectric properties of the segmented Bi_2Te_3/PbTe/$CoSb_3$ material prepared by spark plasma sintering
U. Ail[1], S. Gorsse[1,2], A. Largeteau[1], P. Bellanger[1], B. Chevalier[1], A. M. Umarji[3], and S. Perumal[3]
[1]CNRS, Université de Bordeaux ; [2]IPB, ENSCPB ; [3]Materials Research Centre, Indian Institute of Science, Bangalore

P107. Optical band gap of $In_{0.5}Bi_{1.5}Te_3$ thin films
P. H. Soni, S. R. Bhavsar1, M.P. Jani and C. F. Desai
Physics Department, Faculty of Science, The M. S. University of Baroda

P108. $AgPb_mSbTe_{22.5}$ (m=17-23.5) nanostructured materials with enhanced thermoelectric performance
Zong-Yue Li, Jing-Feng Li
State Key Laboratory of New Ceramics and Fine Processing, Department of Materials Science and Engineering, Tsinghua University

P109. Moved to oral session

P110. Sputtered p-type Sb_2Te_3 / $(Bi,Sb)_2Te_3$ soft superlattices created by nanoalloying
M. Winkler[1], D. Ebling[1], H. Böttner[1], L. Kirste[2]
[1]Fraunhofer-Institute for Physical Measurement Techniques IPM, Thermoelectric Systems
[2]Fraunhofer-Institute for Applied Solid State Physics IAF

P111. Fabrication process of thermoelectric thick-film using bismuth telluride based nanopowders
Kyung Tae Kim and Gook Hyun Ha
Korea Institute of Materials Science

P112. Direct fabrication process and thermoelectric properties of bismuth telluride based powders using byproducts of cu refining process
Gook Hyun Ha[1], Kyung Tae Kim[1], Kyong Ju Kim[2], Gil Geun Lee[2]
[1]Korea Institute of Materials Science; [2]Pukyong National University

P113. Heavily doped p type PbSe with high thermoelectric performance: an alternative of PbTe
Heng Wang, Yanzhong Pei, Aaron D. LaLonde and G. Jeffrey Snyder
Department of Materials Science, California Institute of Technology

ICT Sorting Category: B6: novel materials

P114. Thermoelectric Properties of $Ce_{1-x}Sc_xPd_3$
Stephen Boona and Donald Morelli
Department of Chemical Engineering & Materials Science
Michigan State University

P115. Cryogenic thermoelectric properties of the bismuth-lithium system
Christine M. Orovets, Audrey M. Chamoire, Hyungyu Jin, and Joseph P. Heremans
Department of Mechanical and Aeronautical Engineering, The Ohio State University

P116. Preparation and thermoelectric properties of Sn-subsitituted LAST via the route of MA-PAS and MA-HP
J. Wu, J. Y. Yang, J. S. Zhang, G. Li,S. L. Feng, M. Liu, J. Y. Peng, and Q. Z. Liu
State Key Laboratory of Material Processing and Die & Mould Technology, Huazhong University of Science and Technology

P117. Thermoelectric properties of indium-ion-implanted epitaxial GaAs
M.V. Warren[1], A.W. Wood[2], J.C. Canniff[1], F. Naab[3], C. Uher[2], and R.S. Goldman[1,2]
[1]Department of Materials Science and Engineering, University of Michigan
[2]Department of Physics, University of Michigan
[3]Department of Nuclear Engineering and Radiological Sciences, University of Michigan

P118. Thermoelectric properties of heavily hole doped PbSe
Yeseul Lee[1], John Androulakis[1], Duck-Young Chung[2], and Mercouri Kanatzidis[1,2]
[1]Department of Chemistry, Northwestern University
[2]Materials Science Division, Argonne National Laboratory

P119. Te-alloyed In_4Se_3 and its thermoelectric properties
Mahn Jeong[1,2], Young Soo Lim[1], Won-Seon Seo[1], and Jong-Heun. Lee[2]
[1]Green Ceramics Division, Korea Institute of Ceramic Engineering and Technology
[2]Department of Materials Science and Engineering, Korea University

P120. Thermoelectric properties of selenospinel $Cu_{8-x}Fe_4Sn_{12}Se_{32}$
Koichiro Suekuni[1], Masaru Kunii[2], Hirotaka Nishiate[2], Michihiro Ohta[2], Atsushi Yamamoto[2] and Mikio Koyano[1]
[1]School of Materials Science, Japan Advanced Institute of Science and Technology
[2]Energy Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST)

P121. Thermoelectric properties of indium-selenium compounds prepared by mechanical alloying and sintering
Ju-Hyuk Yim[1,2], Hyung-Ho Park[2], Chan Park[3] , Myong-Jae Yoo[4] and Jin-Sang Kim[1]
[1]Electronic Materials Center, Korea Institute of Science and Technology
[2]Department of Materials Science and Engineering, Yonsei University
[3]Department of Materials Science and Engineering, Seoul National University
[4]Electronic Materials and Device Research Center, Korea Electronics Technology Institute

P122. Thermoelectric properties of pure bismuth-based materials with nano-scale precipitates
Yinglu Tang, Nicholas Heinz, and G. Jeffrey Snyder
California Institute of Technology

P123. Synthesis and thermoelectric properties of MgB_4
Masatoshi Takeda and Hiroki Saitoh
Nagaoka University of Technology

P124. Misfit layer sulfides, $(Bi_{1-x}AE_xS)_{1.2}(TiS_2)_2$, as novel thermoelectric materials
Yulia Eka Putri[1], Chunlei Wan[1,2], Yifeng Wang[1], and Kunihito Koumoto[1,2]
[1]Graduate School of Engineering, Nagoya University
[2]CREST, Japan Science and Technology Agency

P125. Influence of copper on the thermoelectric properties of $Ag_{3.6}Mo_9Se_{11}$ compound
Tong Zhou[1], Bertrand Lenoir[1], Malika Colin[1], Anne Dauscher[1], Patrick Gougeon[2], and Michel Potel[2]
[1]Institut Jean Lamour, UMR 7198 CNRS-Nancy Université-UPVM, Ecole Nationale Supérieure des Mines de Nancy,
[2]Unité Sciences Chimiques de Rennes, Equipe Chimie du Solide et Matériaux UMR6226 CNRS Université de Rennes

P126. Influence of semiconductor layer thickness on microstructure and thermoelectric properties of nitride metal/semiconductor superlattices for high-temperature energy conversion
Polina V. Burmistrova[1,3], Jeremy L. Schroeder[2,3], Philip Jackson[4], Timothy D. Sands[1,2,3], and Ali Shakouri[4]
[1]School of Materials Engineering, Purdue University
[2]School of Electrical and Computer Engineering, Purdue University
[3]Birck Nanotechnology Center, Purdue University
[4]Electrical Engineering, University of California-Santa Cruz.

P127. Formation and properties of embedded zincblende and wurtzite nitride nanocrystals
A. W. Wood[1], X. Weng[2], B. L. Cardozo[3], Y. Q. Wang[4], and R. S. Goldman[1,3]
[1]Department of Physics, University of Michigan
[2]Materials Research Institute, Penn State University
[3]Materials Science and Engineering, University of Michigan
[4]Materials Science and Technology Division, Los Alamos National Laboratory

P128. Polyaniline encapsulated graphene nanoplatelets for thermoelectric applications
Jinglei Xiang and Lawrence T. Drzal
Department of Chemical Engineering and Materials Science
Michigan State University

P129. Mobility and thermopower of surface and bulklike charges in Bi and Sb nanowires
T. E. Huber[1], A. Adeyeye[1], A. Nikolaeva[2,3], L. Konopko[2,3], R.C. Johnson[4], and M. J. Graf[4]
[1]Howard University
[2]Academy of Sciences, Chisinau, Moldova
[3]International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland.
[4]Department of Physics, Boston College

P130. Thermoelectric dependence of AZO/InAZO quantum well multilayer structures on band-gap offsets at increasing operating temperatures
Sean Teehan, Harry Efstathiadis, and Pradeep Haldar
College of Nanoscale Science and Engineering, University at Albany

P131. Artificially anisotropic material yielding a transverse thermoelectric effect
Tsutomu Kanno, Akihiro Sakai, Kouhei Takahashi, Atsushi Omote, Hideaki Adachi and Yuka Yamada
Advanced Technology Research Laboratories, Panasonic Corporation, Kyoto, Japan

P132. Large thermal Hall coefficient in bismuth
W. Kobayashi[1,2], Y. Koizumi[3], and Y. Moritomo[1]
[1]Univ. Tsukuba; [2]JST PRESTO; [3]Waseda Univ.

P133. Thermoelectric property of textured polycrystalline Bi_2S_3 prepared by using Bi_2S_3 nanorods and nanotubes
Zhen-Hua Ge[1], Bo-Ping Zhang[1], Zhao-Xin Yu[1], and Jing-Feng Li[2]
[1]Beijing Key Lab of New Energy Materials and Technology, School of Materials Science and Engineering, University of Science and Technology Beijing; [2]State Key Laboratory of New Ceramics and Fine Processing, Department of Materials Science and Engineering, Tsinghua University, Beijing

P134. Thermoelectric properties of double-doped GaSb:(Zn, Te)
C.E.Kim[1], K. Kurosaki[1], H. Muta[1], U. Ohishi[1] and S. Yamanaka[1,2]
[1]Osaka University, Japan

P135. Type II narrow gap semiconducting superlattices as thermoelectric elements at cryogenic temperatures
Chuanle Zhou, M. Norko, Matthew Grayson
Northwestern University, Electrical Engineering & Computer Science

P136. Thermoelectric transport in InGaAs with high concentration of rare-earth TbAs embedded nanoparticles
Ekaterina Selezneva[1], Laura Cassels[2], Ashok Ramu[3], Tela Favaloro[1], Je-Hyeong Bahk[1], Mona Zebarjadi[1], Zhixi Bian[1], John Bowers[3], Joshua Zide[2] and Ali Shakouri[1]
[1]Univ. of California - Santa Cruz; [2]Univ. of Delaware; [3]Univ. of California - Santa Barbara

ICT Sorting Category: B: Thermoelectric Materials

P137. Bulk nanostructured bismuth telluride (Bi_2Te_3) with improved figure of merit
Mohsin Saleemi[1], Shanghua Li[1] , Muhammet S. Toprak[1] , Mats Johnsson[2], Mamoun Muhammed[1]
[1]Functional Materials Division, Royal Institute of Technology (KTH), Stockholm
[2]Arrhenius Laboratory, Stockholm University

P138. Heterostructured nanocomposites of $PbTe/Bi_2Te_3$ for thermoelectrics
Shreyashi Ganguly[1], Kevin Zhou[2], Jeff Sakamoto[2], Ctirad Uher[3], Stephanie L. Brock[1] and Donald Morelli[2]
[1]Department of Chemistry, Wayne State University
[2]Chemical Engineering and Materials Science, Michigan State University
[3]Physics Department, University of Michigan

P139. Effect of uniaxial deformation on the thermoelectric anisotropy and magnetothermoelectric properties of glass coated Bi-Sn wires

A.A. Nikolaeva[1,2], L.A. Konopko[1,2], A.K. Tsurkan[1], O.V. Botnari[1]
[1]Institute of Electronic Engineering and Nanotechnologies "D.Gitsu", AS of Moldova
[2]International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland

P140. Size quantization semimetal- semiconductor transition in Bi-2at% Sb nanowires: thermoelectrical properties.

A.A. Nikolaeva[1,2], L.A. Konopko[1,2], T.E. Huber[3], P.P. Bodiul[1], I.A. Popov[1], E.F. Moloshnik[1]
[1]Institute of Electronic Engineering and Nanotechnologies "D.Gitsu", AS of Moldova
[2]International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland
[3]Department of Chemistry, Howard University

P141. Growth, electrical and thermal properties of doped mono and polycrystalline SiGe-based quantum dots superlattices

G. Savelli, D. Hauser and J. Simon
CEA Liten, Grenoble, FRANCE

P142. Enhanced electrical conductivities in $Si_{80}Ge_{20}B_{0.6}$ alloys with Er addition prepared by spark plasma sintering

R. Zhao, L. Shen and F. Guo
Beijing Univ. of Tech.

P143. Search for resonant scatterers in bismuth and bismuth-antimony alloys - experiments

Hyungyu Jin[1], Bartlomiej Wiendlocha[1,3], Katherine S. Whitehouse[1], and Joseph P. Heremans[1,2]
[1]Department of Mechanical Engineering, Ohio State University
[2]Department of Physics, Ohio State University
[3]Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Cracow

P144. Exploring thermoelectric performances of transuranium compounds based on neptunium, plutonium and americium

J.-C. Griveau[1], K. Gofryk[2], J. Rebizant[1], E. Colineau[1]
[1]Joint Research Center, Institute for Transuranium Elements, European Commission; [2]Los Alamos National Laboratory

P145. Trend for thermoelectric materials and their earth abundance

R. Amatya and R.J. Ram
Research Lab of Electronics, Massachusetts Institute of Technology, Cambridge, USA

P146. Thermoelectric properties of PbSe doped with Indium

Eric Evola, Michele Nielsen, Joseph Heremans
Ohio State University

ICT Sorting Category: C1: microstructure

P147. Effects of reduction potential on the microstructure and transport properties of electrodeposited thermoelectric Bi_2Te_3 nanowires

Ho Sun Shin[1], Seong Gi Jeon[2], Jin Yu[2], Jae Yong Song[1], Jinhee Kim[1], Nguyen Thach[1], Ho-Ki Lyeo[1], Dongmin Kang[1] and Hyun Min Park[1]
[1]Korea Research Institute of Standards and Science
[2]Korea Advanced Institute of Science and Technology

P148. The preferred orientations and the lattice parameters of $Ca_3Co_4O_9$ thin films deposited on sapphire substrate

O-Jong Kwon[1], Jangwon Han[1], Hyunwoo Yoo[1,2], Hyo-Jung Kim[1,2], Kyeongdal Choi[3], Jin-Sang Kim[2], Chan Park[1]
[1]Seoul national University
[2]Korea Institute of Science and Technology
[3]Korea Polytechnic University

P149. Effect of post-annealing on thermoelectric properties of bismuth-antimony-tellurium thin films deposited by co-sputtering

Seong-jae Jeon[1,2], Minsub Oh[1,2], Seungmin Hyun[1] and Hoo-jeong Lee[2]
[1]Division of Nano-Mechanical Systems Research, Korea Institute of Machinery & Materials
[2]School of Advanced Materials Science and Engineering, Sungkyunkwan University

P150. The study of thermoelectric properties of silicon nanowires

Younghoon Hyun, Moongyu Jang, Youngsam Park, Wonchul Choi1, Taehyung Zyung, Yil-Suk Yang and Jongkee Kwon
ETRI, Daejeon, Korea, 1KAIST, Daejeon, Korea

P151. Electron backscatter diffraction for rapid characterization of thermoelectric material structure

J. B. Beck[1], M. Alvarado[1], D. Nemir[1], M. M. Nowell[2], E. Rubio[1]
[1]TXL Group, Inc
[2]EDAX Corporation

ICT Sorting Category: C2: properties

P152. Optimization of mechanical and thermoelectric properties for $GeTe_{0.91}PbTe_{0.09-x}BiTe_x$ consolidated by hot-pressed process

Chia-Chan Hsu[1], Hsiu-Ying Chung[2], Tse-Hsiao Lee[1], Chun-Mu Chen[1], Hsu-Shen Chu[1], Jenn-Dong Hwang[1], Tao-Hsing Chen[3]
[1]Industrial Technology Research Institute, Taiwan
[2]Department of Materials Science and Engineering, Feng Chia University
[3]Department of Mechanical Engineering, National Kaohsiung University of Applied Sciences

P153. High temperature equipment for measuring Hall coefficient and charge carrier concentration, mobility and resistivity

Kasper A. Borup, Mogens Christensen, and Bo B. Iversen
Center for Materials Crystallography, Department of Chemistry and iNANO, Aarhus University

P154. Electrical and mechanical properties of $CoSb_3$ under thermal and cyclic compressive loads

Wen Pengfei[1,2], Li Peng[2,3], Zhang Qingjie[2], Ruan Zhongwei[1], Liu Lisheng[1,2], and Zhai Pengcheng[1,2]
[1]Department of Engineering Structure and Mechanics, Wuhan University of Technology [2]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

P155. Physical properties of materials based on $Tl_{10}Te_6$: La and Sn doping for thermoelectric purposes

B. A. Kuropatwa, S. Bangarigadu-Sanasy, H. Kleinke
University of Waterloo

P156. Single Bi_2Te_3 nanowire assembly onto a pre-fabricated platform by using dielectrophoresis and thermoelectric properties measurement

Z. Wang, M. Kroener and P. Woias
Institute for Microsystems Technology-IMTEK, University of Freiburg

P157. Methods and equipment for quality control of thermoelectric materials

L. I. Anatychuk, M. V. Havrylyuk and V. V. Lysko
Institute of Thermoelectricity, Chernivtsi, Ukraine

P158. Extraction and implementation of non-ideal parameters of thermoelectric generation systems in SPICE modeling

M. Chen[1], J. Gao[2,3], Z. Kang[4], J. Zhang[4], and Q. Du[2]
[1]Institute of Energy Technology, Aalborg University,
[2]School of Mechanical and Auto Engineering, South China University of Technology
[3]Hebei University of Science and Technology
[4]R&D Center, Fuxin Electronic Technology Co., Ltd.

P159. Thermoelectric transport in nanostructured bulk materials from sulfur-doped pnictogen chalcogenide nanoplate crystals

Yanliang Zhang[1], Rutvik J. Mehta[2], Matthew Belley[1], Liang Han[1], Theodorian Borca-Tasciuc[1] and Ganpati Ramanath[2]
[1]Department of Mechanical, Aerospace and Nuclear Engineering, Rensselaer Polytechnic Institute
[2]Department of Materials Science and Engineering, Rensselaer Polytechnic Institute

P160. Thermomagnetic figure of merit in semimetals: the case of graphite

Zengwei Zhu, Benoît Fauqué and Kamran Behnia
Laboratoire Photons et Matière (CNRS-UPMC), ESPCI, Paris, France

P161. Advanced research in thermoelectrics

Claus Linseis
Linseis GMBH

P162. Thermal characterization of bismuth tellurides

J. Blumm, A. Schindler, A. Lindemann
NETZSCH-Geraetebau GmbH

P163. Magnetic, optical and structural properties of Fe doped Bi_2Te_3 single crystal

Bhakti Jariwala[1], Dimple Shah[1], Sandip Vyas[2]
[1]Department of Applied Physics, S.V. National Institute of Technology
[2]School of Science, Gujarat University, Ahmedabad.

ICT Sorting Category: C: Measurement & Characterization

P164. Investigation of the sintering pressure and thermal conductivity anisotropy of melt-spun spark-plasma-sintered $(Bi,Sb)_2Te_3$ thermoelectric materials

Wenjie Xie[1,2], Jian He[2], Song Zhu[2], Tim Holgate[2], Shanyu Wang[1], Xinfeng Tang[1], Qingjie Zhang[1], and Terry M. Tritt[2]
[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]Department of Physics & Astronomy, Clemson University, Clemson, SC 29634-0978, USA

P165. Semiconductor measuring thermoelectric converters of improved accuracy

L. I. Anatychuk, V. I. Bodnaruk and D. D. Taschuk
Institute of Thermoelectricity, Chernivtsi, Ukraine

ICT Sorting Category: D1: design and fabrication

P166. Simulation of a silicide-based thermoelectric generator for power generation
A.J. Zhou[1], J.Z. Li[1], X.B. Zhao[2], T.J. Zhu[2], G. Karpinski[3], and E. Mueller[3]
[1]State Key Laboratory of Electronic Thin films and Integrated Devices, University of Electronic Science and Technology of China
[2]State Key Laboratory of Silicon Materials, Zhejiang University
[3]Institute of Materials Research, German Aerospace Center (DLR

P167. Optimal design of a segmented thermoelectric generator
Cai Lanlan[1], Li Peng[1], Zhai Pengcheng[2], Tang Xinfeng[1], Zhang Qingjie[1] and M. Niino[3]
[1]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology
[2]Department of Engineering Structure and Mechanics, Wuhan University of Technology [3]Japan Aerospace Exploration Agency

P168. Examination of a thermally suitable construction for a non-conventional uni-leg Mg_2Si thermoelectric power generator
T. Sakamoto[1], T. Iida[1], Y. Taguchi[2], S. Kurosaki[1], Y. Hayatsu[1], S. Sakuragi[1], K. Nishio[1], Y. Kogo[1], and Y. Takanashi[1]
[1]Department of Materials Science and Technology, Tokyo University of Science
[2]Union Material Inc.

P169. A resistance ratio analysis for $CoSb_3$-based thermoelectric unicouples
Son-Mok Choi[1], Kyoung-Hoon Kim[1], Seong-Min Jeong[1], Hyung-Seuk Choi[1], Won-Seon Seo[1], Il-Ho Kim[2]
[1]Green Ceramic Div., Korea Institute of Ceramic Engineering and Technology (KICET)
[2]Department of Material Science and Engineering, Chungju National University

P170. Design and optimization of gradient interface of $CoSb_3/Bi_2Te_3$ thermoelectric materials
Gang Liu, Wenyu Zhao, Hongyu Zhou, Xin Cheng and Qingjie Zhang
State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology

P171. Effect of surface preparation on mechanical properties of Ni contacts on polycrystalline $(Bi_{1-x}Sb_x)_2(Te_{1-y}Se_y)_3$ alloys
S. Kashi, M.K. Keshavarz, D. Vasilevskiy, R.A. Masut, S. Turenne
École Polytechnique de Montréal

P172. Design and fabrication of the flexible thermoelectric cdevice using FPCB
Jung Yup Kim, Kwang Eun Lee and Seungwoo Han
Korea Institute of Machinery and Materials

P173. Comparison of thermoelectric multiphysics model and device
Mikko Ruoho[1], Tuomas Rossi[1], Ilkka Tittonen[1], Erno Soinila[2], Mika Jokipii[3] and Jyrki Tervo[3]
[1]Department of Micro and Nanosciences, Aalto University
[2]Department of Engineering Design and Production, Aalto University
[3]VTT Technical Research Centre of Finland

P174. A study of thermoelectric properties of Bi_2Te_3 alloys with Ta barrier layer
Yi-Ray Chen[1], Wen-Hsuan Chao[2], Chien-Hsuan Yeh[1], Hsiao-Hsuan Hsu[1], Ya-Wen Chou[1]
[1]Green Energy & Environment Research Laboratories, Industrial Technology Research Institute, Taiwan
[2]Material & Chemical Research Laboratories, Industrial Technology Research Institute, Taiwan

P175. Numerical analysis performance of thermoelectric module composed of Bi_2Te_3 (Sb,Te) alloys by directional solidification

Ping-Jen Lee[1,2], Long-Sun Chao[1], Jheng-Han Yang[1], Yi-Ray Chen[3] and Ya-Wen Chou[3]
[1]Department of Engineering Science, National Cheng Kung University, Taiwan
[2]Nano Technology Research Center, ITRI, Taiwan
[3]Green Energy and Environment Research Laboratories, ITRI, Taiwan3

P176. Effect of encapsulation of thermoelectric power generator

A.Yamamoto, K. Nagase, H. Takazawa, Hirotaka Nishiate, K. Ueno
National Institute of Advanced Industrial Science and Technology

P177. Silicon nanowires based thermoelectric generator from a top-down approach

Y. Li[1,2,3], K. Buddharaju[1], N. Sing[1], G. Q. Lo[1], and S. J. Lee[3]
[1]Institute of Microelectronics, A*STAR (Agency for Science, Technology and Research), [2]NUS Graduate School for Integrative Science and Engineering
[3]ECE Department, National University of Singapore

ICT Sorting Category: D2: thin film devices

P178. Thermoelectric characteristics of thermopile devices consisting of bismuth-telluride and antimony-telluride thin-film legs

M. Y. Kim, Y. N. Choi, J. M. Bae and T. S. Oh
Department of Materials Science and Engineering, Hongik University, Seoul, Korea

P179. Effect of dopant concentration on thermoelectric and hydrogen sensing properties of silicon-germanium thin films

Jing-Wen Ho, Li-Shin Chang
Dept. of Mater. Sci. & Eng., Natl. Chung Hsing Univ

ICT Sorting Category: D3: device performance

P180. Energy capabilities of permeable segmented thermoelements in cooling mode

L. I. Anatychuk and R.G. Cherkez
Institute of Thermoelectricity, Chernivtsi, Ukraine

P181. Transverse-type short-circuited thermoelements

L.I. Anatychuk and R.R. Kobylyansky
Institute of Thermoelectricity, Chernivtsi, Ukraine

P182. Transverse-type spiral anisotropic thermoelement

L. I. Anatychuk and A. V. Prybyla
Institute of Thermoelectricity, Chernivtsi, Ukraine

P183. Validation of the thermoelectric properties of advanced high temperature materials using a segmented couple performance test

Billy C. Li[1], Pawan Gogna[1], Chen-Kuo Huang[1], Kurt Star[2], Samad Firdosy[1], Jeff Sakamoto[3], Vilupanur A. Ravi[1,4], and Jean-Pierre Fleurial[1]
[1]Jet Propulsion Laboratory, California Institute of Technology
[2]University of California, Los Angeles
[3]Michigan State University
[4]California State Polytechnic University, Pomona

P184. Thermal optimization of thermoelectric module ceramic substrate
A. Rezania, L. A. Rosendahl
Department of Energy Technology, Aalborg University

P185. Design of a portable test system for measuring thermoelectric generator module parameters
Amir Yadollah Faraji and Aliakbar Akbarzadeh
Energy Conservation and Renewable Energy Group, School of Aerospace, Mechanical. and Manufacturing Engineering, RMIT University

P186. Thermoelectric generation for different material sets having the same Z
David Nemir, Jan Beck and Manuel Alvarado
TXL Group, Inc.

P187. Improving the testing of power generation modules and resulting performance projections
Michael Spry
Tellurex Corporation

ICT Sorting Category: E1: cooling applications

P188. Thermoelectric self refrigeration: experimental and computational approach
A. Martínez, D. Astrain, A. Rodríguez
Mechanical, Energy and Materials Engineering Department
Public University of Navarre, 31006 Pamplona, Spain

P189. Computational study on the thermal influence of the components of a thermoelectric ice maker on the ice production
A. Rodríguez, D. Astrain, A. Martínez, and J.G.Vián
Mechanical, Energy and Materials Engineering Department
Public University of Navarre, 31006 Pamplona, Spain

P190. Computational study on the temperature control system of a thermoelectric refrigerator
D. Astrain, A. Martínez, J. Gorraiz, and A. Rodríguez
Mechanical, Energy and Materials Engineering Department
Public University of Navarre, 31006 Pamplona, Spain

P191. The development of high efficiency thermoelectric water heap pump
Ming-Lang Hung, Jyi-Ching Perng, and Ya-Wen Chou
Green Energy & Environment Research Laboratories, Industrial Technology Research Institute, Taiwan

ICT Sorting Catergory E1: cooling applications

P192. Modeling of thermoelectric system for simultaneous cooling and heating
M.G. How[1], S.I. Gilani[2], M.S. Aris[1] and K.S. Ong[2]
[1]Universiti Teknologi PETRONAS; [2]Monash University Malaysia

P193. Improvement of cooling performance of a compact thermoelectric air conditioner using an evaporative cooling system
C. Lertsatitthanakorn, W. Tipsaenporm and B. Bubphachot
Faculty of Engineering, Mahasarakham University, Khantarawichai, Mahasarakham, Thailand

P194. The cooling system of 3-Dimensional integrated circuits using thin film thermoelectric cooler
Namjae Kim[1], Jinho Jung[1],Younggyo Gim[1] and Shiho Kim[2]
[1]Department of Electrical Engineering, Chungbuk National Univ
[2]School of Integrated Technology and Yonsei Institute of Convergence Technology (YICT), Yonsei University

ICT Sorting Category: E2: automotive applications

P195. Potential usage of thermoelectric devices in a HTPEMFC system: two case studies
Xin Gao, Min Chen, Søren Juhl Andreasen, and Søren Knudsen Kær
Aalborg University

P196. Heat exchanger model for recovering waste from diesel engine exhaust for thermoelectric power generation
C. Baker andP. Vuppuluri
University of Texas at Austin

P197. Withdrawn

ICT Sorting Category: E3: generator applications

P198. A flameless combustion-based thermoelectric power generation system
Heng Xiao[1], Kuanrong Qiu[2]
[1]School of Power Engineering, Chongqing University, Chongqing 400044, China [2]CANMET Energy Technology Centre-Ottawa, Natural Resources Canada

P199. Solar thermoelectric generator trials for the developing world
R. Amatya and R.J. Ram
Research Laboratory of Electronics, Massachusetts Institute of Technology

P200. Integration of a thermoelectric generator assembly with fuel-fired residential boiler
K. Qiu[1], H. Xiao[1, 2], and A.C.S. Hayden[1]
[1]CANMET Energy Technology Centre-Ottawa, Natural Resources Canada
[2]School of Power Engineering, Chongqing University, Chongqing 400044, China

P201. Thermoelectric materials for efficient solar high temperature converters
Anke Weidenkaff, A. Veziridis, L. Karvonen, S. Populoh, A. Shkabko, N. Schaeuble
Empa, Swiss Federal Laboratories for Materials Science and Technology

P202. High-performance solar thermoelectric power conversion: modeling, optimization, and experimental demonstration
Daniel Kraemer[1], Kenneth McEnaney[1], Bed Poudel[2], J. Christopher Caylor[2], Hsien-Ping Feng[1], Yi Ma[3], Bo Yu[3], Xiao Yan[3], Giri Joshi[3], Xiaowei Wang[3], Dezhi Wang[3], Andrew Muto[1], Matteo Chiesa[1,4], Zhifeng Ren[3], and Gang Chen[1]
[1]Mechanical Engineering Department, Massachusetts Institute of Technology,
[2]GMZ Energy
[3]Department of Physics, Boston College
[4]Masdar Institute of Science and Technology, Abu Dhabi, UAE

P203. Development of 200w MPPT power conditioner with inter leave power switching control
Hiroshi. Nagayoshi[1], Tatsuya Nakabayashi[2], Hiroshi Maiwa[2], and Takenobu Kajikawa[2]
[1]Tokyo National College of Technology
[2]Shonan Institute of Technology

P204. Hybrid producer gas by using by biomass – thermoelectric
C. Punlek[1], S.Maneewan[1], S. Chindaruksa[1] and C. Lertsatitthanakorn[2]
[1]Thermal Energy and Energy Conservation Promotion Research Unit, Physics Department, Faculty of Science, Naresuan University, Phitsanulok, 65000 Thailand
[2]Faculty of Engineering, Mahasarakham University, Khantarawichai, Mahasarakham 44150, Thailand

P205. Experimental study on solar parabolic dish thermoelectric power generator
S. Shanmugam[1], M. Eswaramoorthy[2], AR.Veerappan[3]
[1,3]Department of Mechanical Engineering, National Institute of Technology, Trichirappalli, India
[2]Department of Mechanical Engineering, Adhiyamaan College of Engineering, Hosur,India

P206. Performance prediction of the waste heat recovery system by thermoelectric power generator
Gia-Yeh Huang[1], Cheng-Ting Hsu[2], Chun-Jen Fang[3] and Da-Jeng Yao[1,2]
[1]Department of Power Mechanical Engineering, National Tsing Hua University
[2]Institute of NanoEngineering and MicroSystems, National Tsing Hua University
[3]China Steel Corporation, Kaohsiung 81233, Taiwan

P207. A maximum power point tracking controller for thermoelectric generators with peak gain control of boost DC-DC converters
Jungyong Park[1], Nyambayar Baatar[1] and Shiho Kim[2]
[1]Department of Electrical Engineering, Chungbuk National University,
Cheongju, Chungcheongbuk-do, 361-763, Korea
[2]School of Integrated Technology and Yonsei Institute of Convergence Technology(YICT),
Yonsei University, Songdo, Inchen, 406-840, Korea

P208. Scalable Cost/Performance Analysis for Thermoelectric Waste Heat Recovery Systems
K. Yazawa and A. Shakouri
Univ. of California Santa Cruz

P209. Integrating aerogel into space and terrestrial thermoelectric generator technology
Travis Thompson, Ryan Maloney, and Jeff Sakamoto
Chemical Engineering and Materials Science Department, Michigan State University

P210. Pulse mode operation of thermoelectric generators
Gao Min
School of Engineering, Cardiff University

ICT Sorting Category E4: Other Waste Heat Recovery

P211. Waste-heat recovery from phosphors
A. Vogelsang[1], S. Ben Salem[2], G. Bastian[1]
[1]Hochschule Rhein-Waal, Fakultät Technologie und Bionik, Emmerich, Germany
[2]University of Applied Sciences Trier, Faculty of Engineering

P212. On the prospects of using thermoelectric recuperators in heat engines
L. I. Anatychuk
Institute of Thermoelectricity, Chernivtsi, Ukraine

ICT Sorting Category: E5: other industrial aspects

P213. Thermoelectric properties dependence on the performance of Peltier current leads under over-current conditions

Toshio Kawahara[1], Masahiko Emoto[2], Makoto Hamabe[1], Hirofumi Watanabe[1],
Yury Ivanov[1], Jian Sun[1], and Satarou Yamaguchi[1]
[1]Center of Applied Superconductivity and Sustainable Energy Research, Chubu University, Aichi 487-8501 Japan,
[2]National Institute for Fusion Science, Gifu 509-5292 Japan.

P214. Thermoelectric generation systems and their power electronics stage

J. Gao[1,2], L. Ni[3], K. Sun[4], M. Chen[5], Z. Kang[6], L. Zhang[3], Y. Xing[3], and J. Zhang[6]
[1]School of Mechanical and Auto Engineering, South China University of Technology, [2]Hebei University of Science and Technology
[3]Jiangsu Key Lab of New Energy Generation, Nanjing University of Aeronautics & Astronautics
[4]State Key Lab of Power Systems, Dept. of Electrical Engineering, Tsinghua University [5]Institute of Energy Technology, Aalborg University
[6]R&D Center, Fuxin Electronic Technology Co., Ltd

ICT Sorting Category: E: System & Industrial Applications

P215. Study on the design and initial experiments of thermolelectric generator using exhaust heat of car

S.H Quan, Y.D Deng, and R.Quan
School of Automobile Engineering, Wuhan University of Technology

P216. Design and Application of Thermoelectric Generators on the Waste Heat Recovery from Heating Furnace

C.J. Fang[1] and J.D. Hwang[2]
[1]China Steel Corporation, Kaoshiang, Taiwan, R.O.C
[2]Industry Technology Research Institute, Hsinchu, Taiwan, R.O.C.

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Lunch – Governors AB
Posters – Governors EF
Banquet – Governors ABCD