Monday 18 November 2013

Room: Newton

11:00 ***Opening Ceremony*** *(Plenary)*

11:20 **[Invited Speaker] Optimizing Performance in Thermoelectric Alloys**
1n_X1_1 *Snyder , G.J.*
California Institute of Technology, (UNITED STATES)

Session X1: Oxides I
Room: Newton
Chair: A. Maignan

12:00 **Transport Properties of Misfit Layered Cobaltite Thin Films Synthesized by Polymer Assisted**
1n_X1_2 **Deposition**
Rivas-Murias, B. ; Vila-Fungueiriño , J. M. ; Rivadulla, F.
CIQUS-University of Santiago de Compostela, (SPAIN)

12:20 **High Temperature Thermoelectric Conversion Employing Calcium Manganates**
1n_X1_3 *Thiel, P. ; Populoh, S. ; Saucke, G. ; Shkabko, A. ; Eilertsen, J. ; Rigort, R. ; Brunko, O. ; Trottmann, M. ; Sagarna, L. ; Karvonen, L. ; Weidenkaff, A.*
empa - Swiss Federal Laboratories for Materials Science and Technology, (SWITZERLAND)

12:40 **New Aspects in Oxide Thermoelectric Materials with Unconventionally Enhanced Phonon Scattering**
1n_X1_4 *Ohtaki, M. ; Miyaishi, S. ; Mizuta, K.*
Kyushu University, (JAPAN)

Session F: Thin Films
Room: Einstein
Chair: K.M. Paraskevopoulos

11:20 **Novel Apparatus for Transport Properties Measurements of Thin Films under Sulphur Atmosphere at**
1e_F_1 **Moderate Temperatures (Room Temperature to 400°C)**
Clamagirand, J.M. ; Ares, J.R. ; Ferrer, I.J. ; Sanchez, C.
Universidad Autónoma de Madrid, (SPAIN)

11:40 **Measurement of Thermal Conductivity on Nano Scaled Thin Film and Thin-Layered Materials**
1e_F_2 *Marx, H.-W. [1]; Südmeyer, I. [2]; Rohde, M. [2]; Gaede, D. [2]; Seifert, H.J. [2]; Linseis, F. [1]; Linseis, C. [1];Renner, H. [1]*
[1]Linseis Messgeräte GmbH, (GERMANY); [2]Karlsruhe Institute of Technology, (GERMANY)

12:00 **Structural and Thermoelectric Properties of Binary and Ternary Skutterudite Thin Films**
1e_F_3 *Daniel, M. [1]; Liebig, A. [1]; Gordan, O. D. [1]; Zahn, D. R. T. [1]; Plech, A. [2]; Albrecht, M. [1]*
[1]TU Chemnitz, (GERMANY); [2]Karlsruher Institut für Technologie (KIT) , Institute for Synchrotron Radiation (GERMANY)

12:20 **Multilayered Ge/SiGe Material in Microfabricated Thermoelectric Modules**
1e_F_4 *Samarelli, A. [1]; Ferre Llin, L. [1]; Zhang, Y. [1]; Weaver, J.M.R. [1]; Dobson, P. [1]; Cecchi, S. [2]; Chrastina, D. [2]; Isella, G. [2]; Etzelstorfer, T. [3]; Stangl, J. [3]; Muller, E. [4]; Paul, D. [1]*
[1]University of Glasgow, (UNITED KINGDOM); [2]Politecnico di Milano, (ITALY); [3]Johannes Kepler Universitt, (AUSTRIA); [4]ETH Zurich, (SWITZERLAND)

12:40 **Development of Pulse Transient Hot Strip Method to Measure Thermal Transport Properties of Thin**
1e_F_5 **Film Materials**
Ma, Y. [1]; Gustavsson, J. [2]; Gustafsson, S. [1]; Gustavsson, M. [1]
[1]Hot Disk AB, (SWEDEN); [2]Chalmers University of Technology, (SWEDEN)

13:00 ***Lunch Break***

Session X2: Oxides II
Room: Newton
Chair: A. Weidenkaff

14:00 **The Role of Sodium Rich Pre-Treatments in the Enhanced Sintering of Sodium Cobalt Oxide Thermoelectric Ceramics**
1n_X2_1
Jakubczyk, J.E. ; Dorey, R.A. ; Sansom, C.L.
Cranfield University, School of Applied Sciences, (UNITED KINGDOM)

14:20 **High Temperature Thermoelectric Properties of Y and Fe co-dopants in $Ca_3Co_4O_{9+\delta}$**
1n_X2_2
Wu, N.Y. ; Nong, N.V. ; Pryds, N. ; Linderoth, S.
Technical University of Denmark, (DENMARK)

14:40 **Growth of Epitaxial $Ca_3Co_4O_9$ Thin Films by Reactive RF-Magnetron Sputtering with Post Annealing Process**
1n_X2_3
Paul, B. ; Kerdsongpanya, S. ; Eklund, P.
Linköping University, (SWEDEN)

15:00 **Manufacturing Process for TiO_x Based Thermoelectric Modules – from Suboxide Synthesis to Module Testing**
1n_X2_4
Martin, H.-P. ; Conze, S. ; Poenicke, A. ; Kinski, I. ; Schilm, J. ; Michaelis, A.
Fraunhofer Institute for Ceramic Technologies and Systems IKTS, (GERMANY)

15:20 **Microstrucutre of Nb-$SrTiO_3$ Ceramics with SrO-excess and with Addition of $Sr_3Ti_2O_7$ Platelet Seeds**
1n_X2_5
Jeric, M. ; Ceh, M.
Jozef Stefan Institute Ljubljana, (SLOVENIA)

Session T1: Theory I
Room: Einstein
Chair: J. Tobola

14:00 **[Invited Speaker] Band Structure Engineering in Geometry Modulated Nanostructures for Thermoelectric Efficiency Enhancement**
1e_T1_1
Zianni, X.
Technological Educational Institution of Central Greece, (GREECE)

14:40 **Influence of Nonlinearity of Phonon Spectrum on Thermal Conductivity in Nanostructured Material Based on Bi-Sb-Te**
1e_T1_2
Bulat, L. [1]; Osvenskii, V. [2]; Pshenay-Severin, D. [3]
[1]National Research University of Information Technologies, Mechanics and Optics (ITMO), St.Petersburg, (RUSSIAN FEDERATION); [2]GIREDMET Ltd. Moscow, (RUSSIAN FEDERATION); [3]Ioffe Physical Technical Institute, St Petersburg, (RUSSIAN FEDERATION)

15:00 **Effect of Spin-orbit Interaction on Electronic Structure and Electron Transport Properties of Mg_2X (X=Si, Ge, Sn)**
1e_T1_3
Kutorasinski, K. ; Wiendlocha, B. ; Tobola, J. ; Kaprzyk, S.
University of Science and Technology in Krakow, (POLAND)

15:20 **Coherence Appearance in Thermal Transport from a Thermodynamic Approach**
1e_T1_4
Alvarez, F. X. [1];Lopeandia, A. [1];Tomas, C. [1];Rodriguez-Viejo, J. [1];Cantarero, A. [2];Ferrando, P. [1]; Garcia, G. [1]
[1]Universitat Autonoma de Barcelona (UAB), (SPAIN); [2]Universitat de Valencia (UV), (SPAIN)

15:40 ***Coffee Break & Poster Session I***

Session X3: Oxides III

Room: Newton

Chair: J. Hejtmanek

16:40 **[Invited Speaker] From Oxides to Sulfides and Selenides: Optimization of the Power Factor**

1n_X3_1 *Hébert, S. [1]; Takahashi, H. [2]; Raghavendra, N. [1]; Berthebaud, D. [1]; Guilmeau, E. [1]; Gascoin, F. [1]; Maignan, A. [1]; Pelloquin, D. [1]; Lebedev, O. [1]; Roddatis, V. [3]*

[1]Laboratoire CRISMAT, (FRANCE); [2]Department of Physics, Nagoya University, (JAPAN); [3]CIC energiGUNE, (SPAIN)

17:20 **Thermoelectric Properties and High-Temperature Stability of $Ca_3Co_4O_9$ Thin Films**

1n_X3_2 *Brinks, P. [1]; Ihns, M. [1]; Van Nong, N. [2]; Breckenfeld, E. [3]; Martin, L. W. [3]; Pryds, N. [2]; Rijnders, G. [1]; Huijben, M. [1]*

[1]University of Twente and MESA+ Institute for Nanotechnology, (NETHERLANDS); [2]Technical University of Denmark, (DENMARK); [3]University of Illinois, (UNITED STATES)

17:40 **The $(ZnO)_k$ In_2O_3 System and its Microstructural, Structural and Thermoelectric Evaluation**

1n_X3_3 *Kosir, M. [1]; Daneu, N. [1]; Reènik, A. [1]; Guilmeau, E. [2]; Bernik, S. [1]*

[1]Jozef Stefan Institute, (SLOVENIA); [2]Laboratoire CRISMAT/ENSICAEN, (FRANCE)

18:00 **Synthesis of $Nd_{1-x}Ca_xCoO_3$ Perovskites Nanowires for Thermoelectric Applications**

1n_X3_4 *Clara, M ; Culebras, M ; Gómez, A ; Sapiña, F ; Cantarero, A*

University of Valencia, (SPAIN)

Session T2: Theory II

Room: Einstein

Chair: X. Zianni

16:40 **Theoretical Study of Point Defects in Mg_2X (X = Si, Ge, Sn) Thermoelectric Materials**

1e_T2_1 *Zwolenski, P. ; Tobola, J. ; Kaprzyk, S.*

AGH University of Science and Technology, (POLAND)

17:00 **Electronic Structure and Thermoelectric Properties of Pseudo-Quaternary $Mg_2(Si,Sn,Ge)$-Based**

1e_T2_2 **Materials**

Kutorasinski, K. [1]; Tobola, J. [1]; Kaprzyk, S. [1]; Khan, A. U. [2]; Kyratsi, T. [2]

[1]AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, (POLAND); [2]Department of Mechanical and Manufacturing Engineering, University of Cyprus, (CYPRUS)

17:20 **Computational Investigation of the Electronic and Thermoelectric Properties of Strained Bulk Mg_2Si**

1e_T2_3 *Balout, H. ; Boulet, P. ; Record, M. C.*

Aix-Marseille University, (FRANCE)

17:40 **Phonon Drag Effect in $FeGa_3$**

1e_T2_4 *Wagner-Reetz, M. [1]; Kasinathan, D. [1]; Schnelle, W. [1]; Cardoso-Gil, R. [1]; Rosner, H. [1]; Gille, P. [2]; Grin, Y. [1]*

[1]Max-Planck-Institut für Chemische Physik fester Stoffe, (GERMANY); [2]Ludwigs-Maximilians-Universität, (GERMANY)

18:00 **A First-Principles Study of the Role of Lanthanum Substitution in Reducing Lattice Thermal**

1e_T2_5 **Conductivity of the Thermoelectric Compound $AgSbTe_2$ (P4/mmm)**

Amouyal, Y.

Technion - Israel Institute of Technology, (ISRAEL)

18:20 ***Welcome Reception***

Tuesday 19 November

Session B1: Silicides, Stannides and Germanides I
Room: Newton
Chair: H. Böttner

09:00 **[Invited Speaker] Current Status of Mg_2Si to Realize Practical Thermal-to-Electric Power Generation Device**
2n_B1_1
Iida, T. [1]; Sakamoto, T. [2]; Taguchi, Y. [3]; Hirayama, N. [1]; Ishikawa, M. [1]; Nemoto, T. [4]; Kogo, Y. [1]; Nishio, K. [1]; Takanashi, Y. [1]
[1]Tokyo University of Science, (JAPAN); [2]JSPS postdoctoral research fellow, (JAPAN); [3]Yasunaga Corporation, (JAPAN); [4]Nippon Thermostat Co, (JAPAN)

09:40 **Thermoelectric Property of N-Type Mg_2Si Synthesized by the Convenient Melt-Growth Method**
2n_B1_2
Udono, H. ; Kambe, K.
Ibaraki University, (JAPAN)

10:00 **Mg and Mn Silicides : Material Development and Up Scaling, Thermoelectric Properties, Pre Contacting and Module Assembling**
2n_B1_3
Pacheco, V. ; Recknagel, C. ; Pöhle, G. ; Senftleben, F. ; Wieland, S. ; Weissgaerber, T. ; Kieback, B.
Fraunhofer IFAM, (GERMANY)

10:20 **Thermoelectric Properties of P- and N-Type Mg_2Si Compounds Obtained by SHS**
2n_B1_4
Mars, K. ; Godlewska, E.
AGH University of Science and Technology, (POLAND)

10:40 **Optimizing Thermoelectric Properties of Mg_2Si: Fabrication Parameters and the Influence of MgO**
2n_B1_5
de Boor, J. ; Compere, C. ; Dasgupta, T. ; Stiewe, C. ; Schmitz, A. ; Kolb, H. ; Kelm, K. ; Müller, E.
German Aerospace Center (DLR), (GERMANY)

Session N1: Nano-Structures I
Room: Einstein
Chair: M. Martin-Gonzalez

09:00 **Electrodeposition of Composition-Controlled $(Bi_{1-x}Sbx)_2Te_3$ Nanowires in Polycarbonate Membranes**
2e_N1_1
Schoenleber, J. [1]; Stein, N. [1]; Montaigne, F. [1]; Migot, S. [1]; Zhang, Y. [2]; Boulanger, C. [1]
[1]University of Lorraine/Institut Jean Lamour, (FRANCE); [2]University of Lorraine/LEM3, (FRANCE)

09:20 **Defect Engineering of Bi_2Te_3-Based Thermoelectric Nanowires and Topological Surface States**
2e_N1_2
Nielsch, K. [1]; Bässler, S. [1]; Hamdou, B. [1]; Böhnert , T. [1]; Kimling, J. [1]; Gooth, J. [1]; Pippel, E. [2]
[1]University of Hamburg, (GERMANY); [2]Max Planck Inst. of Microstructure Physics, (GERMANY)

09:40 **Thermal Conductivity of Bi_2Te_3 Nanowires Arrays: Theory, Fabrication and Measurements**
2e_N1_3
Cantarero, A. [1]; Manzano, C. V. [2]; Martin, J. [2]; Caballero, O. [2]; Martín-González, M. [2]; de Lima Jr., M. M. [1]; de Tomás, C. [3]; Àlvarez, F. X. [3]
[1]Uni. of Valencia, (SPAIN); [2]IMM-CNM-CSIC, (SPAIN); [3]Autonomous University of Barcelona, (SPAIN)

10:00 **Investigation of Thermal Transport in InAs Nanowires for Thermoelectric Applications**
2e_N1_4
Swinkels, M.Y. ; Zardo, I. ; Cavalli, A. ; Plissard, S.R. ; van der Heijden, R.W. ; Bakkers, E.P.A.M.
Eindhoven University of Technology, (NETHERLANDS)

10:20 **Thermal Transport Across Ultrathin Silicon Membranes and Asymmetric Nanowires**
2e_N1_5
Ferrando, P. [1]; Lopeandía, A.F. [1]; Abad, L.l. [2]; Alvarez, F.X. [1]; Garcia, G. [1]; Muñoz-Pascual, F.X. [2]; Rodriguez-Viejo, J. [1]
[1]Univ. Autònoma de Barcelona, (SPAIN); [2]Inst. de Microelectrónica de Barcelona, IMB-CNM, (SPAIN)

10:40 **Synthesis and Seebeck Measurements of Thermoelectric $Bi_{1-X}Sb_X$ Nanowire Array**
2e_N1_6
Cassinelli, M. [12]; Müller, S. [2]; Voss, K.-O. [2]; Völklein, F. [3]; Trautmann, C. [12]; Toimil-Molares, M.E. [2]
[1]Technische Universtät Darmstadt, (GERMANY); [2]GSI Helmholtz Centre for Heavy Ion Research, (GERMANY); [3]University of Applied Sciences Wiesbaden, (GERMANY)

11:00 ***Coffee Break***

Session B2: Silicides, Stannides and Germanides II

Room: Newton

Chair: T. Kyratsi

11:20 2n_B2_1 **Relation between Crystallographic Structure and Thermoelectric Properties of Undoped and Ag-Doped $Mg_2Si_{1-x}Sn_x$**

Bourgeois, J. [1]; Recour, Q. [1]; Chaput, L. [1]; Tobola, J. [2]; Berthebaud, D. [3]; Gascoin, F. [3]; Scherrer, H. [1]
[1]Université de Lorraine-Institut Jean Lamour, (FRANCE); [2]Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, (POLAND); [3]CRISMAT, (FRANCE)

11:40 2n_B2_2 **Synchrotron Study of Ag Doped Mg_2Si: Correlation Between Properties and Structure**

Prytuliak, A. [1]; Godlewska, E. [2]; Mars, K. [2]
[1]European Space Agency, (NETHERLANDS); [2]AGH University of science and technology, (POLAND)

12:00 2n_B2_3 **Evaluation of the Performance of a Two-Leg Unicouple (Bi-Doped $Mg_2Si_{0.6}Ge_{0.4}$ / Ge-Doped $Mn_{1.75}Si$)**

Recour, Q. [1]; Ihou-Mouko, H. [1]; Bourgeois, J. [1]; Poli, G. [2]; Roux, J. P. [2]; Stephenson, K. [3]; Scherrer, H. [1]
[1]Université de Lorraine, (FRANCE); [2]AREVA TA, (FRANCE); [3]ESA-ESTEC, (NETHERLANDS)

12:20 2n_B2_4 **In Situ and Ex Situ Doping of Mg_2Si - Thermodynamics of Selected Mg-Si-dopant Systems**

Godlewska, E. ; Mars, K.
AGH University of Science and Technology, (POLAND)

12:40 2n_B2_5 **Macro-Micro-Nano Features in Magnesium Silicide/Stannide/Germanide Compounds**

Polymeris, G. S. [1]; Vlachos, N. [2]; Khan, A.U. [2]; Lioutas, Ch. B. [1]; Pavlidou, E. [1]; Hatzikraniotis, E. [1]; Paraskevopoulos, K. M. [1]; Kyratsi, Th. [2]
[1]Aristotle University of Thessaloniki, (GREECE); [2]University of Cyprus, (CYPRUS)

Session N2: Nano-Structures II

Room: Einstein

Chair: J.P. Fleurial

11:20 2e_N2_1 **Paradoxical Enhancement of the Power Factor in Polycrystalline Silicon Due to the Formation of Nanovoids**

Narducci, D. [1]; Lorenzi, B. [1]; Tonini, R. [2]; Frabboni, S. [2 4]; Gazzadi, G.C. [4]; Ottaviani, G. [2]; Neophytou, N. [5]; Zianni, X. [6]
[1]Univ. of Milano Bicocca, (ITALY); [2]Univ. of Modena and Reggio Emilia, (ITALY); [4]CNR, Institute of Nanoscience–S3, (ITALY); [5]Technical Univ. of Vienna, (AUSTRIA); [6]Inst. of Chalkida, Psachna, and Inst. Microelectr.,(GREECE)

11:40 2e_N2_2 **Reduction of Thermal Conductivity in Compositionally-Graded $Si_{1-x}Ge_x$ Superlattices**

Rodriguez-Viejo, J. [1]; Ferrando, P. [1]; Paul, B. [1]; Lopeandía, A.F. [1]; Alvarez, F.X. [1]; de Tomás, C. [1]; Garcia, G. [1]; Goñi, A.R. [2]; Alonso, M.I. [2]; Garriga, M. [2]; Santiso, J. [3]
[1]Universitat Autònoma de Barcelona, (SPAIN); [2]Intstituto de Ciencia de Materiales de Barcelona, (SPAIN); [3]Instituto de Nanociencia y Nanotecnología, ICN2, (SPAIN)

12:00 2e_N2_3 **Effect of Pore Sizes on the Reduction in Lattice Thermal Conductivity of Nano to Micro Scale Porous Materials**

Niarchos, D.; Tarkhanyan, R.
Institute for Advanced Materials, Physicochemical Processes, Nanotechnology & Microsystems, Demokrit, (GREECE)

12:20 2e_N2_4 **Monte Carlo Simulations Of Thermal Conductivity Nanoporous Si Membranes**

Wolf, S. ; Neophytou, N. ; Stanojevic, Z. ; Kosina, H.
Institute for Microelectronics, Technical University of Vienna, (AUSTRIA)

12:40 2e_N2_5 **Enhancement of the Thermoelectric Performance of Semiconductors Utilizing Self-assembled Monolayers**

Wang, T. H. ; Jeng, H. T.
National Tsing Hua University, (TAIWAN)

13:00 ***Lunch Break***

Session C: Chalcogenides
Room: Newton
Chair: F. Gascoin

14:00 **Optimizing Thermoelectric Properties of Germanium Antimony Tellurides in Different Temperature**
2n_C_1 **Ranges by Substitution**
Welzmiller, S. [1]; Rosenthal, T. [2]; Schröder, T. [2]; Schleife, F. [1]; Schwarzmüller, S. [2]; Neudert, L. [2]; Nimmrich, K. [2]; Ganter, P. [2]; Huth, P. [1]; Kersting, B. [1]; Oeckler, O. [1]
[1]Leipzig University, (GERMANY); [2]LMU Munich, (GERMANY)

14:20 **Electrodeposition of Thick Bismuth Telluride Layers Assisted by Soluble Anode**
2n_C_2 *Maas, M. [1]; Diliberto, S. [1]; De Vaulx, C. [2]; Azzouz, K. [2]; Boulanger, C. [1]*
[1]Université de Lorraine - Institut Jean Lamour, (FRANCE); [2]Valeo Thermiques Systèmes, (FRANCE)

14:40 **Influence of Sn on the Thermoelectric Properties of P-Type $Bi_{0.48}Sb_{1.52}Te_{3.1}$**
2n_C_3 *Ohorodniichuk, V. [1]; Masschelein, P. [1]; Candolfi, C. [1]; Baranek, P. [2]; Dalicieux, P. [2]; Dauscher, A. [1]; Lenoir, B. [1]*
[1]Universite Lorraine, IJL, (FRANCE); [2]EDF R&D, (FRANCE)

15:00 **Promising Thermoelectric Properties of the $AgBiCh_2$ System with ZT>1**
2n_C_4 *Berardan, D [1]; Pei, Y-L [2]; Pan, L [1]; Sui, J [3]; Wu, H [4]; Zhao, L-D [1]; Dragoe, N [1]*
[1]Univ. Paris-Sud, (FRANCE); [2]Beihang University, (CHINA); [3]Harbin Institute of Technology, (CHINA); [4]South University of Science and Technology of China, (CHINA)

15:20 **The Study of Topological Insulator in $Bi_{1.5}Sb_{0.5}Te_{1.7}Se_{1.3}$ Nanoflakes and their Thermoelectric**
2n_C_5 **Properties**
Hsiung, T. C. ; Chen, Y. Y.
Institute of Physics, Academia Sinica, Taipei, Taiwan, (TAIWAN)

Session G1: TE Modules and Generators I
Room: Einstein
Chair: D. Narducci

14:00 **Experimental Validation of a Multiphysic Model for Optimization of Thermoelectric Generators**
2e_G1_1 *Favarel, C. [1]; Bedecarrats, J.P. [1]; Kousksou, T. [2]; Champier, D. [2]*
[1]LaTEP, (FRANCE); [2]SIAME, (FRANCE)

14:20 **Feasibility Study on Screen Printing as a Fabrication Technique for Low-Cost Thermoelectric Devices**
2e_G1_2 *Dimitriadou, I. A. [1]; Fulham, A. [1]; Robbins, M.C. [1]; Simpson, K. [1]; Dorey, R. [2]; Jones, P. [2]; Bernadet, S. [2]; Laroche, J. [2]; Piles Guillem, S. [2]; Potyrala, C. [2]; Wood, J. [2]*
[1]European Thermodynamics Limited, (UNITED KINGDOM); [2]Cranfield University, (UNITED KINGDOM)

14:40 **Characterization of High-Temperature Thermoelectric Modules**
2e_G1_3 *Heuer, J. ; Vergez, M. ; König, J. D. ; Bartholomé, K.*
Fraunhofer IPM, (GERMANY)

15:00 **The Effect of Temperature Mismatch on Interconnected TEG Arrays**
2e_G1_4 *Montecucco, A. [1]; Siviter, J. [1]; Simpson, K. [2]; Knox, A. [1]*
[1]University of Glasgow, (UNITED KINGDOM); [2]European Thermodynamics Ltd, (UNITED KINGDOM)

15:20 **Waste Heat Recovery in Steel Works Using Thermoelectric Generator**
2e_G1_5 *Kuroki, T. [1]; Kabeya, K. [1]; Makino, K. [2]; Kaibe, H. [2]; Hachiuma, H. [2]; Fujibayashi, A. [1]*
[1]JFE Steel Corporation, (JAPAN); [2]KELK Ltd., (JAPAN)

15:40 ***Coffee Break & Poster Session II***

Room: Newton

16:40 **[Invited Speaker] Scalable, Non-equilibrium Processing of Thermoelectric Materials and Their**
2n_W_1 **Properties**
Li, Q.
Brookhaven National Laboratory, (UNITED STATES)

Session W: New Materials
Room: Newton
Chair: J. Grin

17:20 **Thermoelectric Transport in Cylindrical Ni and NiCo-Alloyed Nanowires**
2n_W_2 *Nielsch, K. [1]; Kimling, J. [1]; Böhnert, T. [1]; Gooth, J. [1]; Martens, S. [1]; Rott, K. [2]; Reiss, G. [2]*
[1]University of Hamburg, (GERMANY); [2]University of Bielefeld, Germany, (GERMANY)

17:40 **Preparation, Nano Processing and Thermoelectric Properties of Boron Carbide**
2n_W_3 *Feng, B. ; Martin, H.-P. ; Michaelis, A.*
Fraunhofer Institute for Ceramic Technologies and Systems, (GERMANY)

18:00 **High-Temperature Thermoelectric Properties of Tetrahedrites $Cu_{12}Sb_{4-x}Te_xS_{13}$**
2n_W_4 *Bouyrie, Y. ; Candolfi, C. ; Masschelein, P. ; Ohorodniichuk , V. ; Daucher, A. ; Lenoir, B.*
Jean-Lamour Institut, (FRANCE)

Session G2: TE Modules and Generators II
Room: Einstein
Chair: H. Scherrer

16:40 **Adaptive Thermal Conjugation at the Proximity of TEG Contacting Surface for Mid-Temperature**
2e_G2_1 **Operation**
Sakamoto, T. [1]; Iida, T. [1]; Taguchi, Y. [2]; Sekiguchi, T. [1]; Hirayama, N. [1]; Nishio, K. [1]; Takanashi, Y. [1]
[1]Tokyo University of Science, (JAPAN); [2]Yasunaga Corporation, (JAPAN)

17:00 **Improving Thermoelectric Cooling by Light Emission**
2e_G2_2 *Min, G.*
School of Engineering, Cardiff University, (UNITED KINGDOM)

17:20 **Heat Sinks for Miniature Thermoelectric Coolers: Selection and Characterization**
2e_G2_3 *Semeniuk, V. ; Dekhtiaruk, R.*
Thermion Company, (UKRAINE)

17:40 **Development of Enhanced Bi_2Te_3-Based Thermoelectric Materials and Modules for an RTG for Space**
2e_G2_4 **Exploration Missions**
Dimitriadou, I.A. [1]; Robbins, M.C. [1]; Williams, H.R. [2]; Freidman, U. [3]; Ambrosi, R.M. [2]; Reece, M.J [4]; Chen, K. [4]; Ning, H. [4]; Stephenson, K. [5]
[1]European Thermodynamics Limited, (UNITED KINGDOM); [2]University of Leicester, Department of Physics and Astronomy, (UNITED KINGDOM); [3]University of Leicester, Department of Engineering, (UNITED KINGDOM); [4]Queen Mary University of London, (UNITED KINGDOM); [5]European Space Agency, (NETHERLANDS)

20:00 ***Conference Dinner at Breakers Beach House in Noordwijk aan Zee***

Wednesday 20 November 2013

Session M1: Measurements I
Room: Newton
Chair: E. Müller

09:00 **[Invited Speaker] Standardisation of Thermoelectric Material Characterization**
3n_M1_1 *König, J.D. [1]; Jacquot, A. [1]; Pernau, H. [1]; Tarantik, K. [1]; Heuer, J. [1]; Jägle, M. [1]; Ziolkowski, P. [2]; Müller, E. [1]; Haupt, S. [3]; Lenz, E. [3]; Edler, F. [3]; Blumm, J. [4]; Bartholomé, K. [1]*
[1]Thermoelectric Energy Converters, (GERMANY); [2]Thermoelectric Materials and Systems, (GERMANY); [3]Physikalisch-Technische Bundesanstalt, (GERMANY); [4]NETZSCH-Gerätebau GmbH, (GERMANY)

09:40 **Uses and Description of a 3-Layer Model for the 3Omega Method in Cartesian and Cylindrical**
3n_M1_2 **Coordinate Systems with or without Buried Heater and for Various Boundary Conditions**
Jacquot, A. [1]; Barb, Y. [1]; Bayer, B. [1]; Jaegle, M. [1]; Amantia, D. [2]; Suarez, J. [2]; Bautista, L. [2]
[1]Fraunhofer Institute for Physical Measurement Techn., (GERMANY); [2]Leitat Techn. Center, (SPAIN)

10:00 **Measurement of the Temperature Dependent Thermal Properties of TE Materials by a Simple**
3n_M1_3 **Methodology Using Photothermally Generated Seebeck Effect**
Depreister, M. [1]; Kuriakose, M. [1]; Chan Yu King, R. [2]; Roussel, F. [3]; Hadj Sahraoui, A. [1]
[1]UDSMM ULCO, (FRANCE); [2]Univ. of Science and Arts of Oklahoma, (UNITED STATES); [3]UDSMM / Univ. Lille 1, (FRANCE)

10:20 **On Improvement of the Accuracy and Speed in the Process of Measuring Characteristics of**
3n_M1_4 **Thermoelectric Materials**
Anatychuk, L. ; Lysko, V.
Institute of Thermoelectricity, (UKRAINE)

10:40 **Testing Bench for the Thermoelectric Modules and Materials**
3n_M1_5 *Hejtmánek, J. [1]; Knížek, K. [1]; Švejda, V. [2]; Sikora, M. [3]*
[1]Inst. of Physics of ASCR (CZECH REPUBLIC); [2]ŠKODA AUTO a.s. (CZECH REPUBLIC); [3]Sobriety s.r.o.,(CZECH REPUBLIC)

Session D: Skutterudites, Half Heusler and Zintls
Room: Einstein
Chair: J. Snyder

09:00 **Effect of Open Die Pressing on Chemical-Physical Properties of Zn_4Sb_3 Compound**
3e_D_1 *Fanciulli, C. [1]; Carlini, R. [2]; Castellero, A. [3]; Fiore, G. [3]; Baricco, M. [3]; Passaretti, F. [1]; Zanicchi, G. [2]*
[1]CNR - IENI - Lecco Unit, (ITALY); [2]Dipartimento di Chimica e Chimica Industriale - Università di Genova, (ITALY); [3]Dipartimento di Chimica e Centro NIS, Università di Torino, (ITALY)

09:20 **Multiphase Behaviour in $Ti_{1-x}Zr_xNiSn$**
3e_D_2 *Bos, J.-W. [1]; Downie, R. [1]; MacLaren, D. [2]; Smith, R. [3]*
[1]Heriot-Watt University, (UNITED KINGDOM); [2]University of Glasgow, (UNITED KINGDOM); [3]ISIS Facility, (UNITED KINGDOM)

09:40 **Controlling the Thermoelectric Properties by Interstitial Doping in TiNiSn**
3e_D_3 *Downie, R. [1]; Smith, R. [2]; MacLaren, D. [3]; Bos, J. W. [1]*
[1]Heriot-Watt University, (UNITED KINGDOM); [2]ISIS Facility, Rutherford Appleton Laboratory, (UNITED KINGDOM); [3]University of Glasgow, (UNITED KINGDOM)

10:00 **Durability Testing of Multiple Coated and Uncoated $CoSb_3$ Unilegs**
3e_D_4 *Skomedal, G. ; Kristiansen, N. R.*
University of Agder, (NORWAY)

10:20 **Nanostructured Thermoelectrics with $CoSb_3$ Precipitates in Ge-Sb-Te Materials**
3e_D_5 *Fahrnbauer, F. [1]; Rosenthal, T. [2]; Maier, S. [2]; Nentwig, M. [2]; Grundei, M. [2]; Wagner, G. [1]; Snyder, G. J. [3]; Oeckler, O. [1]*
[1]Leipzig University, (GERMANY); [2]LMU Munich, (GERMANY); [3]California Institute of Technology, (UNITED STATES)

>>> Session D continues on next page >>>

10:40 **Effect of High Pressure Torsion in Texture, Microstructure and Raman Spectroscopy Study of the Fe**
3e_D_6 **and Te Substituted Co_4Sb_{12}**
Anbalagan, R. [1]; Rogl, G. [2]; Rogl, P. [2]; Heinrich, P. [2]; Sharma, A. [1]; Suwas, S. [1]; Mallik, R.C. [1]
[1]Indian Institute of Science, (INDIA); [2]Vienna University of Technology, Vienna, (AUSTRIA)

11:00 ***Coffee Break***

Session M2: Measurements II
Room: Newton
Chair: A. Burkov

11:20 **A Flexible Measurement System for Characterization of Thermoelectric Materials**
3n_M2_1 *Schönhoff, M. ; Assion, F. ; Hilleringmann, U.*
University of Paderborn, (GERMANY)

11:40 **Microfluidic Low Cost Calorimeters for Biological and Chemical Applications**
3n_M2_2 *Jaegle, M. [1]; Antes, J. [2]; Bartel, M. [1]; Brett, O. [1]; Broucke, P. [1]; Jedrusik, C. [1]; Winkler, M. [1]*
[1]Fraunhofer-IPM, (GERMANY); [2]Fraunhofer-ICT, (GERMANY)

12:00 **A Comparison of Thermoelectric Devices Evaluation Results Obtained with a Harman Method Based**
3n_M2_3 **and a Porcupine Method Based zT meters**
De Marchi, A. ; Giaretto, V. ; Caron, S. ; Tona, A.
Politecnico di Torino, (ITALY)

12:20 **Issues, Solutions and Instrument Design Features for Testing and Characterization of Unconventional**
3n_M2_4 **Thermoelectric Devices**
Codecasa, M. P. ; Fanciulli, C. ; Passaretti, F.
National Research Council of Italy, (ITALY)

12:40 **Finite Elements Modeling of Transient Harman Method Applied to Nanostructures to Elucidate**
3n_M2_5 **Experimental Requirements**
Muñoz Rojo, M. [1]; Romero, J.R. [1]; Ramos, D. [1]; Borca-Tasiuc, T. [2]; Borca-Tasiuc, D. [2]; Martín González, M. [1]
[1]Instituto de Microelectrónica, (SPAIN); [2]Rensselaer Polytechnique Institute, (UNITED STATES)

Session E: Sulfides and Clathrates
Room: Einstein
Chair: J. König

11:20 **Thermoelectric Properties of TiS_2-Based Compounds**
3e_E_1 *Guilmeau, E. [1]; Barbier, T. [1]; Bréard, Y. [1]; Beaumale, M. [1]; Lebedev, O. [1]; Hébert, S. [1]; Maignan, A. [1]; Kinemuchi, Y. [2]*
[1]CRISMAT Laboratory, (FRANCE); [2]AIST Nagoya, (JAPAN)

11:40 **Thermoelectric Properties of $CuCr_{1-x}V_xS_2$ ($0 \le x \le 0.2$)**
3e_E_2 *Kaltzoglou, A. [1]; Vaqueiro, P. [1]; Powell, A. [2]*
[1]Heriot-Watt University, (UNITED KINGDOM); [2]University of Reading, (UNITED KINGDOM)

12:00 **Thermoelectric and Structural Properties of Co_xTiS_2**
3e_E_3 *Guélou, G. [1]; Kaltzoglou, A. [1]; Vaqueiro, P. [1]; Powell, A. V. [2]*
[1]Heriot-Watt University, (UNITED KINGDOM); [2]University of Reading, (UNITED KINGDOM)

12:20 **Structure and Thermoelectric Properties of Ag_xTiS_2 Compounds**
3e_E_4 *Barbier, T. ; Beaumale, M. ; Lebedev, O. ; Bréard, Y. ; Guilmeau, E.*
CRISMAT Laboratory, (FRANCE)

12:40 **Physical Properties of the Clathrate - I Phase $Ba_8Ir_xGe_{43}$ ($x < 0.4$)**
3e_E_5 *Tomes, P. [1]; Nguyen, D. [2]; Nguyen, L. [1]; Candolfi, C. [3]; Baitinger, M. [2]; Grin, Y. [2]; Paschen, S. [1]*
[1]Institute of Solid State Physics, Vienna University of Technology, (AUSTRIA); [2]Max-Planck-Institut für Chemische Physik fester Stoffe, (GERMANY); [3]Jean Lamour Institute, Univ. de Lorraine - CNRS, (FRANCE)

13:00 ***Lunch Break***

Session A: Automotive Applications
Room: Newton
Chair: M. Codecasa

14:00 3n_A_1 **[Invited Speaker] Development of a Thermoelectric Generator for a 1.4l Gasoline Engine: Results and Future Needs**
Brignone, M.
Centro Ricerche FIAT, (ITALY)

14:40 3n_A_2 **Challenges in Dimensioning of an Optimized Thermoelectric Generator for Waste Heat Recovery in Cars**
Rauscher, M. [1]; Finterwalder, F. [1]; Richter, T. [1]; Schramm, D. [2]
[1]Daimler AG, (GERMANY); [2]University of Duisburg-Essen, (GERMANY)

15:00 3n_A_3 **Modular Modeling, Simulation and Verification of Car Thermoelectric Generation System**
Deng, Y.D. ; Zhang, Y.
Wuhan University of Technology, (CHINA)

15:20 3n_A_4 **Study on the Conversion Efficiency of Thermoelectric Modules Related to the Cooling Unit in the Automotive Exhaust-Based Thermoelectric Generator**
Su, C.Q. ; Wang, W.S. ; Tong, N.Q. ; Chen, S.
Wuhan University of Technology, (CHINA)

Session Y: Organics, Ionic and Liquids
Room: Einstein
Chair: G. Min

14:00 3e_Y_1 **Thermal Conductivity Reduction in P3HT Nanowires Because of Diameter Confinement Effects**
Muñoz Rojo, M. [1]; Martín, J. [1]; Grauby, S. [2]; Dilhaire, S. [2]; Martín González, M. [1]
[1]Instituto de Microelectrónica, (SPAIN); [2]University Bordeaux, (FRANCE)

14:20 3e_Y_2 **Development of Flexible Micro Thermo-Electrochemical Generators Based on Ionic Liquids**
Laux, E. ; Uhl, S. ; Journot, T. ; Jeandupeux, L. ; Keppner, H.
Haute Ecole Arc Ingénierie, (SWITZERLAND)

14:40 3e_Y_3 **Enhanced Power Factor of PANI/GNP Nanocomposites**
Abad, B. [1]; Díaz-Chao, P. [1]; Alda, I. [1]; Almarza, A. [2]; Amantia, A. [2]; Gutierrez, D. [2]; Aubouy, L. [2]; Martín González, M. [1]
[1]Instituto de Microelectrónica de Madrid (CNM-CSIC), (SPAIN); [2]LEITAT Technological Center, (SPAIN)

15:00 3e_Y_4 **Organic Based Thermoelectric Materials for the Development of Flexible Heat Flux Sensors or Thermoelectric Generators**
Massonnet, N. ; Carella, A. ; Jaudouin, O. ; Simonato, J.-P.
CEA Grenoble, (FRANCE)

15:20 3e_Y_5 **Thermoelectric Properties of Tetrathiotetracene Iodide Crystals: Modeling and Experiment**
Casian, A. ; Sanduleac, I.
Technical University of Moldova, (MOLDOVA, REPUBLIC OF)

15:40 ***Coffee Break & Poster Session III***

Session S: Space Applications *(Plenary)*
Room: Newton
Chair: K. Stephenson

16:40 **Reliable Thermoelectric Generators for Space Missions**
3n_S_1 *Novikov, S.V. ; Parparov, E.Z. ; Fedorov, M.I.*
Ioffe Physical-Technical Institute of the Russian Academy of Sciences, (RUSSIAN FEDERATION)

17:00 **Small-Scale Radioisotope Thermoelectric Generator Development Based on Am-241**
3n_S_2 *Ambrosi, R. [1]; Williams, H. [1]; Samara-Ratna, P. [1]; Tomkins, K. [2]; Robbins, M. [3]; Dimitriadou, I. [3]; Chen, K. [4]; Ning, H. [4]; Reece, M. [4]; Pulker, S. [2]; Perkinson, M.C. [2]; Stephenson, K. [5]; Jaegle, M. [6]; Koenig, J. [6]; Vernon, D. [1]; Crawford, A. [1]; Bannister, N. [1]; Sykes, J. [1]*
[1]University of Leicester, (UNITED KINGDOM); [2]Astrium Ltd, (UNITED KINGDOM); [3]European Thermodynamics Ltd, (UNITED KINGDOM); [4]Queen Mary University of London, (UNITED KINGDOM); [5]European Space Agency, ESTEC, (NETHERLANDS); [6]Fraunhofer IPM, (GERMANY)

17:20 **Development of High-Efficiency Segmented Thermoelectric Couples for Radioisotope Thermoelectric**
3n_S_3 **Generators**
Caillat, T. ; Firdosy, S. ; Li, B. C.-Y. ; Huang, C. -K. ; Ravi, V. ; Keyawa, N. ; Gogna, P. ; Paik, J. ; Chase, J. ; Uhl, D. ; Ni, J. ; Smith, K. ; Fleurial, J. -P.
Jet Propulsion Laboratory, (UNITED STATES)

17:40 **Opportunities for Infusion of Advanced Thermoelectric Materials into Next Generation Space Power**
3n_S_4 **Systems**
Fleurial, J.-P. ; Caillat, T. ; Nesmith, B. ; Woerner, D. ; Surampudi, S.
Jet Propulsion Laboratory, (UNITED STATES)

18:00 ***Closing Remarks & Good Bye Drinks at the Erasmus Highbay****

** The Erasmus Building is located on the other side of the ESTEC Premises, 5 minutes walking from the Conference Centre. Please follow directions from the Conference Organisation Team.*

Poster Session I – Monday 18 November 2013

1P_001 **First-Principles Investigation on the Structural, Elastic, Electronic and Properties of the Filled Skutterudite $CeOs_4Sb_{12}$**
Berrahal, M. ; Ameri, M.
University of Djillali Liabes, (ALGERIA)

1P_002 **Influence of the Exchange-Correlation Functional on the Electronic Properties of ZnSb: a Promising Thermoelectric Material**
Niedziolka, K. ; Jund, P.
ICGM - Université Montpellier 2, (FRANCE)

1P_003 **First Principles Studies of Thermoelectric GeTe, $AgSbTe_2$, and TAGS**
Shinya, H. ; Funashima, H. ; Masago, A. ; Fukushima, T. ; Katayama-Yoshida, H.
Graduate School of Engineering Science, Osaka University, (JAPAN)

1P_004 **The Influence of High-pressure, Magnetic Field and Inhomogeneity on the Properties of Thermoelectric Materials**
Shchennikov, V.V. [1]; Ovsyannikov, S.V. [2]; Korobeynikov, I.V. [1]; Morozova, N.V. [1]
[1]Institute of Metal Physics of Russian Academy of Sciences, Urals Division, (RUSSIAN FEDERATION);[2]Institute for Solid State Chemistry of Russian Academy of Sciences, Urals Division, (RUSSIAN FEDERATION)

1P_005 **QSPR Approach for Estimating Viscosity of Ionic Liquids**
Sosnowska, A. ; Barycki, M. ; Gajewicz, A. ; Puzyn, T.
Gdańsk University of Technology and University of Gdańsk, (POLAND)

1P_006 **Molecular Simulations of Ionic-Liquid Based Thermoelectric Converters**
Gieldon, A. ; Bobrowski, M. ; Czaplewski, C.
Gdańsk University of Technology, (POLAND)

1P_007 **Reduction and Oxidation Reactions in Thermo-electric Generators Based on Ionic Liquids**
Bobrowski, M. ; Freza, S. ; Skurski, P.
Gdańsk Univ. of Technology/Dept. of Applied Physics and Mathematics, (POLAND)

1P_008 **Theoretical Study of Lanthanum Oxides as Thermoelectric Materials**
Funashima, H. ; Yoshida, H.K.
Osaka University, (JAPAN)

1P_009 **Thermoelectric Properties of Layered Oxyselenides**
Luu, S.D.N. ; Vaqueiro, P.
Heriot-Watt University, (UNITED KINGDOM)

1P_010 **Thermoelectric Properties of Hydrothermal-Processed $Ca_{1-x-y}La_xSm_yMnO_3$**
Park, K. [1]; Kim, C. M. [1]; Seo, J. W. [1]; Kim, K. T. [2]
[1]Sejong University, (REPUBLIC OF KOREA); [2]Korea Institute of Industrial Technology, (REPUBLIC OF KOREA)

1P_011 **Thermoelectric Properties of $(Ca_{3-x}Fe_x)Co_4O_9$ Ceramics**
Delorme, F. [1]; Diaz-Chao, P. [2]; Guilmeau, E. [2]; Giovannelli, F. [3]
[1]Université Francois Rabelais de Tours, (FRANCE); [2]CRISMAT, (FRANCE); [3]Université François Rabelais de Tours, (FRANCE)

1P_012 **An Alternate Approach for High Level Mg Substitution in Lamella Cobaltites, $A(CoMg)O_2$;(A=Li, Na) for Thermoelectric Applications**
Bokinala, K. K. [1]; James Raju, K.C. [1]; Miclau, M. [2]; Pollet, M. [3]
[1]University of Hyderabad, (INDIA); [2]INCEMC, Timisoara, (ROMANIA); [3]ICMCB. Bordeaux, (FRANCE)

1P_013 **Effects of Particle Size on Thermoelectric Properties of $CuCrO_2$**
Ngo, T.N.M. ; Blake, G.R. ; Palstra, T.T.M.
Zernike Institution for Advanced Materials, (NETHERLANDS)

1P_014 **Structural and Thermoelectric Characterization of a $La_{0,95}Sr_{0,05}CoO_3$-Silica Composite**
Langer, F ; Kun, R ; Busse, M
University of Bremen, (GERMANY)

1P_015 **Microstructure and Thermoelectric Properties of Si-Added $SrMnO_{3-\delta}$ for Power Generation**
Park, K. [1]; Seo, J. W. [1]; Kim, C. M. [1]; Kim, K. T. [2]
[1]Sejong University, (REPUBLIC OF KOREA); [2]KITECH, (REPUBLIC OF KOREA)

1P_016 **Crystallization and Transport Properties of Amorphous $CrSi_2$ Thin Film Thermoelectrics**
Novikov, S.V. ; Burkov, A.T.
Ioffe Physical-Technical Institute of the Russian Academy of Sciences, (RUSSIAN FEDERATION)

1P_017 **Electrodeposition of Co-Sb Thick Films and their Thermoelectric Properties in DMSO**
Rull-Bravo, M [1]; Muñoz Rojo, M [1]; Jacquot, A [2]; Fernández Lozano, J.F. [3]; López Martínez, A.M. [4]; Martín González, M.S. [1]
[1]Instituto de Microelectrónica de Madrid, (SPAIN); [2]Fraunhofer-IPM, (GERMANY); [3]Instituto de Cerámica y Vidrio, (SPAIN); [4]Escola Politéctina Superior de Eng.Electrònica, (SPAIN)

1P_018 **Size Effects in Bi_2Te_3 Thin Films**
Rogacheva, E.I. [1]; Budnik, A.V. [2]; Sipatov, A.Y. [2]; Fedorov, A.G. [3]; Dresselhaus, M.S. [4]
[1]National Technical University "Kharkov Polytechnic Institute", (UKRAINE); [2]National Technical University, (UKRAINE); [3]Institute for Scintillation Materials NAS of Ukraine, (UKRAINE); [4]Massachusetts Institute of Technology, (UNITED STATES)

1P_019 Withdrawn

1P_020 **Development of Powder Metallurgy Based PbTe-PbS Materials for Thermoelectric Applications**
Hazan, E. ; Gelbstein, Y.
Ben-Gurion University, (ISRAEL)

1P_021 **Structural Chemistry and Dimensionality of Chalcogenides Materials for Thermoelectric Applications**
Berthebaud, D. [1]; Lebedev, O. [2]; Hébert, S. [2]; Guilmeau, E. [1]; Maignan, A. [2]
[1]CRISMAT CNRS, (FRANCE); [2]Laboratoire CRISMAT, CNRS/ENSICAEN, (FRANCE)

1P_022 **Elaboration and Characterization of Thermoelectric Composites**
Parein, T. [1]; Gascoin, F. [2]; Le Pluart, L. [3]; Retoux, R. [2]
[1]CRISMAT / LCMT, (FRANCE); [2]CRISMAT, (FRANCE); [3]LCMT, (FRANCE)

1P_023 **Physical Properties of Thermoelectric La_3X_4 (X=S, Se, Te) Compounds Using First Principles Calculations**
Niedziolka, K. ; Viennois, R. ; Jund, P.
ICGM - Université Montpellier 2, (FRANCE)

1P_024 **A "Natural Superlattice" Oxytelluride as a Promising Thermoelectric Material for Waste Heat Recovery**
Guélou, G. [1]; Stec, M. [1]; Guilmeau, E. [2]; Powell, A. V. [3]; Vaqueiro, P. [1]
[1]School of Engineering and Physical Sciences, Heriot-Watt University, (UNITED KINGDOM); [2]Laboratoire CRISMAT, CNRS/ENSICAEN, (FRANCE); [3]Department of Chemistry, University of Reading, (UNITED KINGDOM)

1P_025 **Enhancing the Figure of Merit of GeTe-Based Thermoelectric Materials**
Kumar, A. ; Palstra, T. T. M. ; Blake, G. R.
Zernike Institute for Advanced Materials, (NETHERLANDS)

1P_026 **Thermoelectric Properties of Doped PbSe**
Shaabani, L. ; Palstra, T. T. M. ; Blake, G. R.
Zernike Institute for Advanced Materials, (NETHERLANDS)

1P_027 **Bismuth-Doped, PbTe-Based Thermoelectrics with Nanostructuring**
Wiegand, C. ; Landschreiber, B. ; Günes, E. ; Will, C. ; Klar, P. J. ; Schlecht, S.
Justus-Liebig-Universität Giessen, (GERMANY)

1P_028 **Texturing of N-Type Chalcogenides Nanopowders by Open Die Pressing**
Fanciulli, C. [1]; Ceresara, S. [1]; Passaretti, F. [1]; Bassani, E. [1]; Vasilevskiy, D. [2]
[1]CNR - IENI - Lecco Unit, (ITALY); [2]École Polytechnique de Montréal, (CANADA)

1P_029 **Concentration Anomalies of the Thermal Conductivity in PbTe-PbSe Semiconductor Solid Solutions**
Rogacheva, E.I. [1]; Vodorez, O.S. [1]; Nashchekina, O.N. [1]; Dresselhaus, M.S. [2]
[1]National Technical University, Kharkov Polytechnic institute, (UKRAINE); [2]Massachusetts Institute of Technology, (UNITED STATES)

1P_030 **Anomalies in the Isotherms of Heat Capacity of the Bi-Sb Solid Solutions**
Rogacheva, E.I. [1]; Doroshenko, A. [1]; Nashchekina, O.N. [1]; Dresselhaus, M.S. [2]
[1]National Technical University, Kharkov Polytechnic Institute, (UKRAINE); [2]Massachusetts Institute of Technology, (UNITED STATES)

1P_031 **The Effect of Equal Channel Angular Pressing on the Thermoelectric Properties of P-Type Bi-Sb-Te**
Kim, K.T. [1]; Lee, C.H. [1]; Sun, J.H. [1]; Shin, S.Y. [1]; Park, K.S. [2]
[1]Korea Institute of Industrial Technology, (REPUBLIC OF KOREA); [2]Sejong University, (REPUBLIC OF KOREA)

1P_032 **Macro and Micro Scale Features in the Thermoelectric PbTe (Br, Na) Systems: Micro-FTIR, Micro-Seebeck and SEM/EDX Observations**
Stefanaki, E.C. [1]; Nikolic, P.M. [2]; Papageorgiou, C. [3]; Polymeris, G.S. [1]; Pavlidou, E. [1]; Hatzikraniotis, E. [1]; Kyratsi, T. [3]; Paraskevopoulos, K.M. [1]
[1]Solid State Physics Section, Physics Department, Aristotle University of Thessaloniki, (GREECE); [2]Institute of Technical Sciences of SASA, (SERBIA); [3]Department of Mechanical and Manufacturing Engineering University of Cyprus, (CYPRUS)

1P_033 **Influence of Nano-B_4C on Thermoelectric and Mechanical Properties of $Bi_{0.5}Sb_{1.5}Te$ Prepared by Mechanical Alloying and SPS**
Chen, K. [1]; Ning, H. [1]; Ambrosi, R.M. [2]; Williams, H.R. [2]; Dimitriadou, I.A. [3]; Robbins, M.C. [3]; Stephenson, K. [4]; Reece, M.J. [1]
[1]Queen Mary University of London, (UNITED KINGDOM); [2]University of Leicester, (UNITED KINGDOM); [3]European Thermodynamics Limited, (UNITED KINGDOM); [4]European Space Agency, (NETHERLANDS)

Poster Session II – Tuesday 19 November 2013

2P_034 Influence of the Incident Coolant Flow and Thermal Coupling on the Heat Transport of the Cool Side of a Thermoelectric Generator
Krumm, A. ; Pfeiffelmann, B. ; Gottschald, J. ; Dunke, S. ; Benim, A. ; Adam, M. ; Ebling, D. G.
University of Applied Sciences, Duesseldorf, (GERMANY)

2P_035 Modeling and Design of Tubular Thermoelectric Generator Used for Waste Heat Recovery
Tjoa, H. ; Plochmann, B. ; Fischerauer, G.
University of Bayreuth, (GERMANY)

2P_036 Thermoelectric Power Conditioning with Embedded MPPT Control
Montecucco, A. [1];Maganga, O. [2];Phillip, N. [2];Mullen, P. [1];Siviter, J. [1];Knox, A. [1];Burnham, J. [2];Simpson, K. [3]
[1]University of Glasgow, (UNITED KINGDOM); [2]Coventry University, (UNITED KINGDOM); [3]European Thermodynamics Ltd, (UNITED KINGDOM)

2P_037 Thermoelectric Generator for Low Temperature Applications
Follmer, M. ; Steiner, B.
MAGNA Powertrain, Engineering Center Steyr GmbH & Co KG, (AUSTRIA)

2P_038 Design and Simulation of Nanostructure Thermopile Thermal-Based Energy Harvester using ANSYS
Sulaiman, S. ; Abdul Rashid, N.
MIMOS Berhad, (MALAYSIA)

2P_039 Electrical and Configuration Characterization of Thermoelectric Generator Modules
Ashari, A. ; Sulaiman, S.; Abd Rahman, A. A.
MIMOS Berhad, (MALAYSIA);

2P_040 Optimizing the Heating Equipment of City Gate Station Using Thermoelectric Generator
Samadian, P. [1]; Ali, M. G. [2];Mozaffari, A. [2];Alireza, R. [3]
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2P_041 Thermoelectric Generator Power Converter System Configurations: A Review
Man, E.A. ; Schaltz, E. ; Rosendahl, L.
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2P_042 Finite Element Modeling of a Thermoelectric Generator Based on Novel Phase Separated Chalcogenide Compounds
Hazan, E. ; Ben-Yehuda, O. ; Gelbstein, Y.
Ben-Gurion University, (ISRAEL)

2P_043 Transient Thermal Response of Heat Sinks and Its Implication on Power Control Strategies
Youn, N. ; Kim, Y. P. ; Wee, D.
Ewha Womans University, (KOREA, REPUBLIC OF)

2P_044 Thermoelectric Coolers with Silver-Sintered Interconnects
Kähler, J. ; Stranz, A. ; Waag, A. ; Peiner, E.
TU Braunschweig, Unversity of Technology, (GERMANY)

2P_045 Multiscale Modeling of a Thermoelectric Device for the Integration in Wearable Electronics
Bella, M. [1]; Rivero, C. [2]; Blayac, S. [3]; Serradeil, V. [2]; Boulet, P. [1]
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2P_046 Potential Applications of Thermoelectric Generation in the Electric Trains
Lee, C.Y. ; Kim, J. G.
Korea Railroad Research Institute, (KOREA, REPUBLIC OF)

2P_047 Modelica® Library for Dynamic Simulation of Thermoelectric Generators
Nesarajah, M. ; Exel, L. ; Frey, G.
Universität des Saarlandes, (GERMANY)

2P_048 Study of Thermally Induced Degradation Effects on Thermoelectric Materials
Schneider, C.
Justus-Liebig-Universitaet Giessen, (GERMANY)

2P_049 Withdrawn

2P_050 Anodized Aluminum as Effective and Cheap Alternative Substrate for Thermoelectric Generators
Assion, F. [1]; Geneiß, V. [2]; Schönhoff, M. [1]; Hedayat, C. [2]; Hilleringmann, U. [1]
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2P_051 Generalized Heat Equation and the Influence of the Leg Geometry on the Performance of a Thermoelectric Element
Zabrocki, K. [1]; Laval, G. [2]; Seifert, W. [3]; Goupil, C. [4]; Müller, E. [5]
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2P_052 Energy Harvesting Wireless Sensor Network
Mullen, P. ; Knox, A.
University of Glasgow, (UNITED KINGDOM)

2P_053 Temperature Field Emerging at Unstable Thermal Source and Options to Minimize its Effects on Thermoelectric Generator
Brazdil, M. ; Pospisil, J.
Brno University of Technology, (CZECH REPUBLIC)

2P_054 Thermoelectric Energy Harvester for Sensor Applications
Montecucco, A. [1]; Compadre, M. [2]; Knox, A. [1]
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2P_055 Simulation of Power Management Electronics and Energy Storage Unit for MEMS Thermoelectric Generator
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2P_056 On Permeable Thermoelement Simulation
Anatychuk, L. ; Cherkez, R.
Institute of Thermoelectricity, (UKRAINE)

2P_057 Thermoelectric Power Generation Using Waste Heats in Railway Systems
Kim, J. G. ; Lee, C. Y.
Korea Railroad Research Institute, (KOREA, REPUBLIC OF)

2P_058 Installation of a Thermal-Buffering Function Using Phase Changing Materials for a Stable Mid-Temperature Thermoelectric Power Generation
Sawada, K. [1]; Mizuno, K. [1]; Nemoto, T. [2]; Iida, T. [3]
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2P_059 Finite Element Approach for the Evaluation and Optimization of Silicide-Based TEG
Miozzo, A. ; Boldrini, S. ; Battiston, S. ; Fiameni, S. ; Famengo, A. ; Barison, S.
Institute for Energetics and Interphases - National Research Council of Italy, (ITALY)

2P_060 Silica-Based Materials for Thermoelectric-Legs Embedding
Famengo, A. ; Boldrini, S. ; Battiston, S. ; Fiameni, S. ; Barison, S. ; Miozzo, A.
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2P_061 Sintered Nano-Ag as Joining Material for Thermoelectric Modules
Brinkfeldt, K. [1]; Edwards, M. [1]; Simon, J. [2]
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2P_062 Thermoelectrics Goes to Both Marine and Automotive Applications–Goals, Agenda and Achievements of the EC PowerDriver Project
Gelbstein, Y. [1]; Tunbridge, J. [2]; Dixon, R. [2]; Reece, M. [3]; Ning, H. [3]; Gilchrist, R. [4]; Summers, R. [5]; Agote, I. [6]; Dimitriadou, I. [7]; Simpson, K. [7]; Rouaud, C. [8]; Feulner, P. [8]; Rivera, S. [9]; Torrecillas, R. [9]; Husband, M. [10]; Crossley, J. [11]; Robinson, I. [11]
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2P_063 Viper Automotive Thermo-Electric Generator Mechanical Design Development
Fulham, A. [1]; Dimitriadou, I. [1]; Chiwanga, S. [1]; Simpson, K. [1]; Gilchrist, R. [2]; Narveka, Y. [2]
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2P_064 Assessment of Thermoelectric Power Generation for Hybrid Electric Vehicles Based on Tracked Data
Morschel, M. [1]; Hesse, B. [2]; Bastian, G. [1]; Schramm, D. [2]
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2P_065 Simulation of Design and Operating Modes of Thermoelectric Generators for Vehicles
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2P_066 Research on Design Method for Degree of Hybridization of HEV Integrated with TEG
Tang, Z.B.
Wuhan University of technology, (CHINA)

2P_067 Design and Evaluation on the Device Integrated by the Thermoelectric Generation and the Automotive Muffler
Deng, Y.D. ; Xie, J.L. ; Ye, B.Q. ; Tong, N.Q.
Wuhan University of Technology, (CHINA)

2P_068 Thermoelectric Inventions and European Patents
Kirkwood, J.
European Patent Office, (NETHERLANDS)

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3P_069 **Novel Process for Metal Silicide Nanostructures Regarding Cheap and Large Scale Material Synthesis**
Schönecker, A.
RGS Development B.V., (NETHERLANDS)

3P_070 **Thermoelectric Properties of Mg_2Si-Mg_2Sn Solid Solution When Substituting the Magnesium**
Isachenko, G.N. ; Fedorov, M.I. ; Zaitsev, V.K. ; Gurieva, E.A. ; Konstantinov, P.P. ; Novikov, S.V.
Ioffe Physical-Technical Institute, (RUSSIAN FEDERATION)

3P_071 **Structural Characterization and Thermoelectric Properties of Hot-Pressed CoSi Nanocomposite Materials**
Ioannou, M. ; Kyratsi, T.
University of Cyprus, (CYPRUS)

3P_072 **The Effect of Ge on $Mg_2Si_{0.6-x}Sn_{0.4}Ge_x$ Materials**
Nikolaos, V. ; Manoli, M. ; Khan, A.U. ; Athanasopoulos, G. ; Mihailescu, C. ; Giapintzakis, I. ; Kyratsi, T.
University of Cyprus, (CYPRUS)

3P_073 **Structural Properties of Ag/Mg_2Si Composites**
Polymeris, G. S. [1]; Theodorakakos, A. [1]; Lioutas, Ch. B. [1]; Mars, K. [2]; Godlewska, E. [2]; Hatzikraniotis, E. [1]; Paraskevopoulos, K. M. [1]
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3P_074 **Formation of Thermoelectric Candidate Chromium Silicide by Pack Cementation Process**
Stathokostopoulos, D. ; Chaliampalias, D. ; Tarani, E. ; Polymeris, G. ; Pavlidou, E. ; Chrissafis, K. ; Hatzikraniotis, E. ; Paraskevopoulos, K.M. ; Vourlias, G.
Aristotle University of Thessaloniki, (GREECE)

3P_075 **A Study on Magnesium Oxide Uptake in Mg_2Si-Based Materials**
Boldrini, S. ; Battiston, S. ; Famengo, A. ; Fiameni, S. ; Miozzo, A. ; Barison, S.
Institute for Energetics and Interphases, National Research Council of Italy, (ITALY)

3P_076 **Synthesis and Thermoelectric Characterization of Type-I $Ba_8Ga_{16}Ge_{30}$ and Type-VIII $Ba_8Ga_{16-x}Cu_xSn_{30}$ Clathrates Thin Film**
de Souza Santos, E.
Universidade de São Paulo, (BRAZIL)

3P_077 **Study of Host-atoms Substitution Effects for Electronic Structure and Thermoelectric Properties on Sn-based Clathrates**
Akai, K. [1]; Kishimoto, K. [1]; Koyanagi, T. [1]; Kono, Y. [2]; Yamamoto, S. [1]
[1]Yamaguchi University, (JAPAN); [2]DENSO Corp. Res. Lab., (JAPAN)

3P_078 **Thermoelectric Properties of Hot-Pressed $K_2Bi_{8-x}Sb_xSe_{13}$ Materials**
Ioannou, M. ; Kyratsi, T.
University of Cyprus, (CYPRUS)

3P_079 **Hybrid Si/AlO_x Thin Films of the Electron Crystal-Phonon Glass Type as a Thermoelectric Material**
Trutschel, M. [1]; Glenneberg, J. [2]; Heyroth, F. [2]; Werner, P. [1]; Leipner, H.S. [2]
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3P_080 **Thermoelectric Properties of $Cu_2HgSnSe_4$-$Cu_2HgSnTe_4$ Solid Solutions**
Navratil, J. [1]; Kucek, V. [2]; Plecháèek, T. [2]; Èernošková, E. [2]; Laufek, F. [3]; Drašar, È. [2]
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3P_081 Withdrawn

3P_082 **Anisotropic Thermopower of the Kondo Insulator $CeRu_4Sn_6$**
Haenel, J. [1]; Martelli, V. [1]; Arsenijevic, S. [2]; Seyfarth, G. [2]; Winkler, H. [1]; Ikeda, M. [1]; Larrea, J. [1]; Prokofiev, A. [1]; Nardone, M. [2]; Kamran, B. [3]; Fauque, B. [3]; Paschen, S. [1]
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3P_083 **Metallurgical and Thermoelectric Properties in $Co_{1-x}Pd_xSb_3$ and $Co_{1-x}Ni_xSb_3$ Revisited**
Alleno, E. ; Zehani, E. ; Rouleau, O.
CNRS, (FRANCE)

3P_084 **Effect of Te Substitution on the Thermoelectric Properties of $Ag_{3.8}Mo_9Se_{11-y}Te_y$ Compounds**
Colin, M. [1]; Zhou, T. [1]; Masschelein, P. [1]; Candolfi, C. [1]; Dauscher, A. [1]; Lenoir, B. [1]; Al Rahal Al Orabi, R. [2]; Gougeon, P. [2]; Potel, M. [2]; Baranek, P. [3]; Semprimoschnig, C. [4]
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3P_085 **Commercial, High Through-put Skutterudites of High ZT and TE Efficiency**
Grytsiv, A. [1]; Rogl, G. [2]; Hochenhofer, M. [3]; Rogl, P. [2]; Bauer, E. [4]; Zehetbauer, M. [5]
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3P_086 **Effect of Structure and Microstructure on the Thermoelectric Properties of $Yb_{0.19}Co_4Sb_{12}$ Alloy**
Castellero, A. [1]; Ostorero, M. [1]; Ziggiotti, A. [2]; Brignone, M. [2]; Baricco, M. [1]
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3P_087 **Phase Selection and Microstructure Refinement of Melt-Spun Zn_4Sb_3-type Compound**
Castellero, A. [1]; Carlini, R. [2]; Fanciulli, C. [3]; Fiore, G. [1]; Baricco, M. [1]; Zanicchi, G. [2]
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3P_088 **Electrical Characterization of Ni(Ge-Sn-Si) Nanowires for Thermoelectric Application**
Noroozi, M. [1]; Moeen, M. [2]; Abedin, A. [3]; Toprak, M. [3]; Radamson, H. [3]
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3P_089 **Nanovoid Formation and Dynamics in He^+-Implanted Nanocrystalline Silicon**
Lorenzi, B. [1]; Frabboni, S. [2]; Gazzadi, G.C. [3]; Tonini, R. [4]; Ottaviani, G. [4]; Narducci, D. [1]
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3P_090 **Bismuth Nanotubes Included in $Bi_{1-x}Sb_x$ Alloys and their Thermoelectric Characterization**
Günes, E. ; Landschreiber, B. ; Elm, M. T. ; Hartung, D. ; Will, C. ; Klar, P. J. ; Schlecht, S.
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3P_091 **CMOS Compatible Planar Thermoelectric Microgenerator Based on Thin Si Membranes**
Rodriguez-Viejo, J. [1]; Perez-Marin, A. P. [1]; Ferrando, P. [1]; Lopeandía, A.F. [1]; Abad, Ll. [2]; Garcia, G. [1]; Lopez, A.M. [3]; Muñoz-Pascual, F.X. [2]
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3P_092 **Data Analysis for Seebeck Coefficient Measurements**
de Boor, J [1]; Müller, E. [2]
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3P_093 **Simultaneous Measurements of Seebeck Coefficient and Electrical Conductivity up to 860 K**
Lenz, E. ; Haupt, S. ; Edler, F.
Physikalisch-Technische Bundesanstalt, (GERMANY)

3P_094 **Methodology and Implementation of Electrical Contact Resistance Measurement**
Jacquot, A. ; Horzella, J.
Fraunhofer Institute for Physical Measurement Techniques IPM, (GERMANY)

3P_095 **Investigations on Novel Thermoelectric Materials Using a High Temperature Hall-Measurement-Setup**
Pernau, H.-F. ; Bartel, M. ; Menzel, F. ; Jacquot, A. ; Jaegle, M. ; Bartholomé, K.
Fraunhofer IPM, (GERMANY)

3P_096 **A Platform for the Characterization of Thermoelectric Properties of Nanowires**
Jachimowicz, A. [1]; Lientschnig, G. [2]; Paschen, S. [3]
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3P_097 **Characterisation of Thermoelectric Generators: Impact Factors on the Accuracy of the Reference Principle for Heat Flow Determination and Current State of the International Round Robin Campaign**
Ziolkowski, P. ; Blaschkewitz, P. ; Karpinski, G. ; Zabrocki, K. ; Müller, E.
Institute of Materials Research - German Aerospace Center, (GERMANY)

3P_098 **High Resolution Neutron Spectroscopy and Ab Initio Powder Averaged Lattice Dynamics Calculations: Complementary Tools for the Study of Complex Functional Materials**
Koza, M.M. [1]; Johnson, M.R. [1]; Mutka, H. [1]; Leithe-Jasper, A. [2]; Grin, Y. [2]; Rogl, P. [3]; Adroja, D. [4]
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3P_099 **Characterisation of a Thermoelectric Heat Pump**
Siviter, J. [1]; Montecucco, A. [1]; Mullen, P. [2]; Knox, A. [1]
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3P_100 **Energy Harvesting for Low Power Demands on Space Systems: Thermoelectric Generators Under Extreme Environments**
Schmiel, T. ; von Lukowicz, M. ; Rosenfeld, M. ; Tajmar, M.
Institute of Aerospace Engineering at TU Dresden, (GERMANY)

3P_101 **New Technologies of Modules for Space Applications**
Anatychuk, L. ; Razinkov, V.
Institute of Thermoelectricity, (UKRAINE)

3P_102 **Thermoelectric Heat Pump As a Better Solution For Energy Saving In Water Purification Systems On The Manned Spaceships**
Anatychuk, L. [1]; Rifert, V. [2]; Barabash, P. [3]; Usenko, V. [3]
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