The page numbers shown in the scientific program are those for the corresponding abstracts in the 'abstracts book'. The oral talks in red cells are those adjusted after the publication of abstracts book.

May 30, Sunday	
Time	
13:30	Registration
17:30	
18:30	Welcome reception

May 31, Monday	
Time	Chair: Lidong Chen
8:45	Opening ceremony
9:05	**PL-1** Solid-state thermoelectric energy conversion: what do we know and where do we go from here Page 2 **A. Majumdar**
9:50	Coffee break
Time	Chair: Kunihito Koumoto
10:05	**PL-2** Recent and prospective development of thermoelectric materials and devices and their application in China Page 3 **Q. J. Zhang, L. D. Chen**
10:50	**PL-3** Thermoelectric clathrates with off-center rattling ions Page 4 **T. Takabatake**
11:35	
12:00	Lunch

May 31, Monday

Time	Room A	Room B	Room C
	A1 Oxides I Chair: Michitaka Ohtaki, Chunlei Wang	B1 Modules & microsystems I Chair: Lon Bell, Jihui Yang	C1 Theory I Chair: Giulia Galli, Li Shi
13:30	**A1-1** 13:30-13:55 Page 8 Nanostructuring approach to improve thermoelectric performance of $SrTiO_3$ **K. Koumoto, Y. F. Wang, N. Wang, R. Z. Zhang, Y. S. Ba**	**B1-1** 13:30-13:45 Page 38 Thin film thermoelectric module using Screen Print Method **H. J. Yang, H. B. Lee, J. H. We, K. J. Kim, K. C. Choi, B. J. Cho**	**C1-1** 13:30-13:45 Page 70 The Mott relation **G. J. Snyder, A. F. May**
	A1-2 13:55-14:20 Page 8 Toward the enhancement of thermoelectric properties of lamellar $Ca_3Co_4O_9$ by Spark Plasma Sintering modified **J. G. Noudem, D. Kenfaui, D. Chateigner, M. Gomina, B. Ouladdiaf**	**B1-2** 13:45-14:00 Page 38 Recent development on micro thermoelectric power generator **W. Wang, M. Bian**	**C1-2** 13:45-14:00 Page 70 Calculation of the thermoelectric power of rhodium and iridium **H. Brodowsky, M. Albus, Q. Y. Chen, Z. L. Xiao, Z. L. Yin**
		B1-3 14:00-14:15 Page 39 Optimization and fabrication of a thick printed thermoelectric device **C. Navone, M. Soulier, J. Simon, T. Caroff, J. Testard**	**C1-3** 14:00-14:15 Page 71 Thermoelectric properties of zinc antimonides in relation with their microstructures and thermodynamic properties **F. Rouessac-Bosc, M-R.M. Ayral-Marin, A. Denoix, I. Martin, Y. Liu, J. C. Tedenac**
	A1-3 14:20-14:35 Page 9 Thermoelectric anisotropies in ab-plane and c-axis in two Co-based oxides **L. Yu, P. X. Zhang, J. L. Sun, J. B. Qiu, H. U. Habermeier**	**CHANGED!** **B1-4** 14:15-14:30 Development of automotive thermoelectric generators at German Aerospace Center (DLR) **C. Häfele**	**C1-4** 14:15-14:30 Page 71 Thermoelectric properties of scaled silicon nanostructures using the $sp^3d^5s^*$-SO atomistic tight-binding model **N. Neophytou, H. Kosina**
	A1-4 14:35-14:50 Page 9 Nanoparticle coatings of $Ca_3Co_4O_9$ with high power factors fabricated by a microwave plasma process **S. Witanachchi, T. Wangensteen, M. Merlak, P. Mukherjee**	**B1-5** 14:30-14:55 Page 40 Fabrication processes of thermoelectric microdevices **J. F. Li, D. W. Liu**	**C1-5** 14:30-14:45 Page 72 Transport properties in light of analytic band generation: the potential of energy filtering and the validity of the parabolic approximation **E. Flage-Larsen**
	A1-5 14:50-15:05 Page 10 Preparation and thermoelectric properties of La-doped $SrTiO_3$ ceramics **P. P. Shang, B. P. Zhang, Y. Liu, J. F. Li, H. M. Zhu**	**CHANGED!** **B1-6** 14:55-15:10 Page 215 Challenges in standardization of TEG-characterization **J. König, U. Nussel, M. Bartel, U. Vetter, H. Böttner**	**C1-6** 14:45-15:00 Page 72 Inverse problems of thermoelectricity **L. I. Anatychuk, O. Ya. Luste, R. V. Kuz, M. N. Strutynsky**
	A1-6 15:05-15:20 Page 10 Transport and thermoelectric properties of $SrTiO_3$-based nanostructured bulk materials **Y. F. Wang, C. L. Wan, N. Wang, Y. S. Ba, K. Koumoto**	**B1-7** 15:10-15:25 Page 41 Micro-generator using BiSbTe-Pt thermopile and Pt-alumina ceramic combustor **W. Shin, T. Nakashima, M. Nishibori, I. Matsubara, Y. Nakagawa, A. Yamamoto, H. Obara**	**C1-7** 15:00-15:25 Page 73 Theoretical investigation of size effects on electron and phonon thermoelectric transport in nanostructures **Y. Q. Zheng, B. Muralidharan, Z. F. Ren, M. S. Dresselhaus, G. Chen**
15:25	Coffee break		

May 31, Monday

Time	Room A	Room B	Room C
	A2 Nanostructures & composites I Chair: Jacques Noudem, Zhifeng Ren	B2 Auto related Chair: Ryoji Funahashi, David Rowe	C2 Characterization Chair: David Ray Johnson, Gang Chen
15:40	**A2-1** 15:40-16:05 Page 11 Nanostructured thermoelectric materials and their potential applications **Z. F. Ren, G. Chen**	**B2-1** 15:40-15:55 Page 41 Status of a thermoelectric segmented element waste heat power generator for vehicles **L. E. Bell, D. Crane, J. LaGrandeur, C. R. Koripella, S. Ayres**	**C2-1** 15:40-15:55 Page 73 The techniques and measurements of thermal properties of a single nanowire **M. N. Ou, C. L. Chen, P. C. Lee, T. C. Hsiung, L. J. Chou, C. L. Hung, Y. Y. Chen**
		B2-2 15:55-16:10 Page 42 A 300-watt thermoelectric generator from engine coolant of light-duty ICE vehicles **S. Park, S. K. Kim, S. H. Rhi, S. Kim**	**C2-2** 15:55-16:10 Page 74 Characterization of a bulk-micromachined membrane-less in-plane thermopile **Z. Y. Wang, Y. van Ande1, M. Jambunathan, V. Leonov, R. Elfrink, R. Vullers**
	A2-2 16:05-16:20 Page 11 Microstructure and thermoelectric properties of filled skutterudite materials prepared by combining hydrothermal synthesis and hot pressing **K. F. Cai, Z. Qin, Y. Du**	**B2-3** 16:10-16:35 Page 42 Materials and engineering for automotive thermoelectric applications **J. H. Yang**	**C2-3** 16:10-16:25 Page 74 Thermal analysis as a method to develop new optimized materials for use as thermo electric generators / TEG **C. Linseis**
	A2-3 16:20-16:35 Page 12 High performance $In_xCe_yCo_4Sb_{12}$ thermoelectric materials with in-situ nanostructured InSb phase **H. Li, X. F. Tang, Q. J. Zhang**		**C2-4** 16:25-16:40 Page 75 Characterization of thermoelectric materials using advanced thermal analysis techniques **J. Blumm, A. Schindler, A. Lindemann**
	A2-4 16:35-16:50 Page 12 Nanoprecipitation size control in bulk PbTe-base compounds **T. Ikeda, N. J. Marolf, M. B. Toussaint, N. A. Heinz, K. Bergum, V. A. Ravi, G. J. Snyder**	**B2-4** 16:35-16:50 Page 43 Numerical heat transfer analysis on the intensified thermoelectric conversion for high speed exhaust **Z. Zhang, X. F. Yao, H. F. Zhou**	**C2-5** 16:40-17:05 Page 76 The role of materials characterization in thermoelectrics: from materials research to module production **H. Wang**
	A2-5 16:50-17:05 Page 13 Study of the sample thickness effect on the thermoelectric properties of bismuth antimony telluride (BiSbTe) nanocomposite system at low temperature **M. Y. Tang, B. Poudel, X. Yan, B. Yu, G. Chen, Z. F. Ren, C. Opeil, M. S. Dresselhaus**	**B2-5** 16:50-17:05 Page 43 Automotive thermoelectric generator design **F. Stabler**	
	A2-6 17:05-17:20 Page 13 Synthesis and characterization of chalcogenide-based nanoparticles for thermoelectric applications **C. Kim, D. H. Kim, Y. S. Han, J. S. Chung, H. Kim**	**B2-6** 17:05-17:20 Page 44 Thermoelectric power generation system from exhaust hot gas in future hybrid vehicles **S. K. Kim, S. H. Rhi, S. Kim, J. Yoo, B. C. Won, J. C. Jang**	**C2-6** 17:05-17:30 Page 77 Thermoelectric transport in nanostructures of complex crystals **L. Shi**
		B2-7 17:20-17:35 Page 44 Weight penalty incurred in thermoelectric recovery of automobile exhaust heat **D. M. Rowe, J. Smith, G. Thomas, G. Min**	
17:30	Poster Session 1		
18:30	Huangpu river cruise		

June 1, Tuesday

Time	Room A	Room B	Room C
	A3 Clathrates & Zintl compounds I Chair: Yuri Grin, Ling Chen	B3 Modelling I Chair:Jean-Claude Tedenac, Wooyoung Lee	C3 Tellurides I Chair: Harald Böttner, Qiang Li
8:30	**A3-1** 8:30-8:55 Page 14 $Rb_{16}Cd_{25.39(3)}Sb_{36}$: an electron deficient Zintl phase containing infinite dodecahedron chains **W. Z. Zheng, L. Chen**	**B3-1** 8:30-8:45 Page 45 Theoretical and experimental study of vehicular thermoelectric generator **L. I. Anatychuk, R. V. Kuz, O. J. Luste**	**C3-1** 8:30-8:45 Page 78 Thermal mechanical properties of the hot pressed polycrystalline $Bi_{0.5}Sb_{1.5}Te_3$ alloys **J. J. Shen, T. J. Zhu, X. B. Zhao, S. N. Zhang, S. H. Yang, Z. Z. Yin**
	A3-2 8:55-9:10 Page 14 Thermal transport in complex Zintl antimonides **E. S. Toberer, A. F. May, G. J. Snyder**	**B3-2** 8:45-9:00 Page 45 A digital coreless maximum power point tracking circuit for thermoelectric generators **S. Cho, J. Jeong, N. Kim, N. Baatar, S. Kim**	**C3-2** 8:45-9:00 Page 78 Nanostructure characterization of bismuth telluride based powders and extruded alloys by various experimental methods **D. Vasilevskiy, O. Bourbia, S. Gosselin, S. Turenne, R. A. Masut**
	A3-3 9:10-9:25 Page 15 Thermoelectric properties of polycrystalline $Yb_{14}MnSb_{11}$ compounds prepared by inducting melting **C. Yu, T. J. Zhu, S. H. Yang, J. J. Shen, K. Xiao, X. B. Zhao**	**B3-3** 9:00-9:15 Page 46 Considering thermoelectric power generation device efficiency using microchannel heat sink **A. Rezania, L. A. Rosendahl**	**C3-3** 9:00-9:15 Page 79 Controlled multiscale nanostructures and high thermoelectric performance in melt-spun spark-plasma-sintered $(Bi,Sb)_2Te_3$ **W. J. Xie, J. He, S. Zhu, S. Y. Wang, X. F. Tang, Q. J. Zhang, T. M. Tritt**
	A3-4 9:25-9:40 Page 15 High thermoelectric efficiency of Zintl phase $YbCd_{2-x}Mn_xSb_2$ through partial substitution **Q. G. Cao, M. B. Tang, H. Zhang, H. H. Chen, X. X. Yang, X. X. Guo, J. T. Zhao**	**B3-4** 9:15-9:40 Page 46 On-film formation of nanowires for high-efficiency thermoelectric devices **W. Y. Lee**	**C3-4** 9:15-9:30 Page 79 Influence of nanoinclusions on thermoelectric properties of n-type Bi_2Te_3 nanocomposites **S. F. Fan, J. N. Zhao, Q. Y. Yan, J. Ma, H. H. Hng**
	A3-5 9:40-9:55 Page 16 Bulk nano-clathrates: synthesis and thermoelectric proproperties **V. Pacheco, R. Cardoso-Gil, M. Wagner, W. Carrillo-Cabrera, W. Schnelle, N. Oeschler, Y. Grin**	**B3-5** 9:40-9:55 Page 47 System-level modelling of thermoelectric generation in a circuit simulator **M. Chen, L. A. Rosendahl, J. Zhang, J. Zhu, J. Gao, R. Suzuki**	**C3-5** 9:30-9:45 Page 80 Bi_2Te_3-Sb_2Te_3 superlattices grown by MBE **J. König, M. Winkler, S. Buller, U. Schürmann, L. Kienle, W. Bensch, H. Böttner**
	A3-6 9:55-10:10 Page 16 Host framework homogeneity between p- and n-type thermoelectric $Ba_8Ga_{16}Ge_{30}$ clathrate **J. Tang, J. T. Xu, K. Sato, K. Tanigaki**	**B3-6** 9:55-10:10 Page 47 Nanoparticle-embedded Bi nanowires for high-efficiency thermoelectric devices **J. Ham, J. W. Roh, J. S. Noh, W. Y. Lee**	**C3-6** 9:45-10:10 Page 80 A new general strategy for preparation of oriented chalcogenide thin film on arbitrary substrates: spin coating-Co-reduction approach **H. Liu, Y. Zhao, H. M. Qin, X. Wang, K. F. Cai, X. S. Wang, C. L. Wang, D. Liu, J. Y. Wang**
10:10	Coffee break		

June 1, Tuesday

Time	Room A	Room B	Room C
	A4 Low dimensional materials Chair: Wenqing Zhang, Peidong Yang	B4 Antimonides & half-Heuslers Chair: Kefeng Cai, Xun Shi	C4 Silicides Chair: Tiejun Zhu, Janusz Tobola
10:25	**A4-1** 10:25-10:50 Page 17 Semiconductor nanowires for thermoelectrical energy conversion **P. D. Yang**	**B4-1** 10:25-10:40 Page 48 Review of phase equilibria, phase diagrams and properties of antimonides thermoelectric materials. New route for a better approach to their synthesis and properties **J. C. Tedenac, R. Viennois, P. Jund**	**C4-1** 10:25-10:40 Page 81 Theoretical search for efficient dopants in Mg_2X (X= Si, Ge, Sn) thermoelectric materials **P. Zwolenski, J. Tobola, S. Kaprzyk**
	A4-2 10:50-11:05 Page 17 Isotopic superlattices for thermal isolation and improved thermoelectric properties **A. Vogelsang, D. Tatarinov, C. Schiffmann, M. Fuchs, G. Bastian**	**B4-2** 10:40-10:55 Page 48 Electronic structure, bonding character, and thermoelectric properties of some complex materials **L. T. Zhang, A. N. Qiu, J. S. Wu**	**C4-2** 10:40-10:55 Page 81 Silicide-based composites for high temperature thermoelectric applications **S. Bux, R. B. Kaner, J. P. Fleurial**
	A4-3 11:05-11:20 Page 18 ZnO nanowires, nanotubes and complex hierarchical structures obtained by electrochemical deposition **J. Elias, J. Michler, L. Philippe, C. Lévy-Clément**	**B4-3** 10:55-11:10 Page 49 The effects of Bi doping on thermoelectric properties of Zn_4Sb_3 at low temperatures **L. Pan, X. Y. Qin, M. Liu**	**C4-3** 10:55-11:10 Page 82 Thermoelectric properties of Sb-doped $Mg_2Si_{0.3}Sn_{0.7}$ compounds **W. Liu, X. F. Tang, J. W. Sharp**
	A4-4 11:20-11:35 Page 18 Anisotropic thermoelectric properties of quasi-one-dimensional $SrNbO_{3.4}$ **W. Kobayashi, Y. Hayashi, I. Terasaki, H. Yamauchi, M. Karppinen**	**B4-4** 11:10-11:25 Page 49 Evaluation of the thermoelectric properties of MgAgSb **A. J. Thompson, J. W. Sharp, C. J. Rawn**	**C4-4** 11:10-11:25 Page 82 Synthesis and thermoelectric properties of $Mg_2Si_{0.5}Sn_{0.5}$ based solid solutions by B_2O_3 flux method **H. L. Gao, X. X. Liu, T. J. Zhu, X. B. Zhao**
	A4-5 11:35-11:50 Page 19 Influence of the cristallinity on the thermoelectric properties of polycrystalline super lattices formed by self organisation of nano-alloyed materials **D. Ebling, M. Winkler, K. Bartholome, H. Böttner**	**B4-5** 11:25-11:40 Page 50 Co_2 based half-metallic Heusler compounds as spin voltage generators **B. Balke, T. Graf, S. Ouardi, J. Barth, C. F.G. Blum, G. H. Fecher, A. Shkabko, A. Weidenkaff, C. Felser**	**C4-5** 11:25-11:40 Page 83 Distribution of elements in Cu-added $FeSi_2$ Alloy under Peritectoid and Eutectoid Reactions **S. Kiatgamolchai**
	A4-6 11:50-12:05 Page 19 Misfit layer chalcogenides with natural superlattice structure for bulk thermoelectric materials **C. L. Wan, Y. F. Wang, N. Wang, K. Koumoto**	**B4-6** 11:40-11:55 Page 50 Thermoelectric properties of p-type Ti-doped FeVSb half-Heusler compounds **M. M. Zou, J. F. Li, T. Kita**	**C4-6** 11:40-11:55 Page 83 Thermoelectric properties of nano structured chromium disilicide **P. Suresh, A. M. Umarji**
12:00	Lunch		

June 1, Tuesday

Time	Room A	Room B	Room C
	A5 Tellurides II Chair: Claude Godart, Hong Liu	B5 Module & microsystems II Chair: Jeff Snyder, Ali Shakouri	C5 Oxides II Chair: Tsuyoshi Kajitani, Sakae Tanemura
13:30	**A5-1** 13:30-13:55 Page 20 IV-VI based alloys for practical thermoelectric applications **Y. Gelbstein**	**B5-1** 13:30-13:45 Page 51 High temperature segmented thermoelectric devices using rare earth compounds **J. P. Fleurial, C. Y. Li, S. Firdosy, V. Ravi, B. J. Cheng, C. K. Huang, P. Gogna, D. King, A. May, K. Star, G. J. Snyder, J. Paik, E. Brandon, T. Caillat**	**C5-1** 13:30-13:45 Page 84 Pulsed electrical current sintering of partially Mg doped $CuAlO_2$ for thermoelectric applications **C. Liu, D. Morelli**
	A5-2 13:55-14:10 Page 21 Thermal properties and electron configuration of PbTe **T. Seetawan, N. Chansrinuang, H. Wattanasarn**	**B5-2** 13:45-14:00 Page 51 Fabrication of miniaturized thermoelectric modules using nano-SiC-dispersed $(Bi, Sb)_2Te_3$-based alloys **D. W. Liu, J. F. Li, C. Chen, B. P. Zhang**	**C5-2** 13:45-14:00 Page 84 Influence of selective site substitution on the thermal conductivity of single- and double-perovskite oxides **T. Sugahara, M. Ohtaki**
	A5-3 14:10-14:25 Page 21 Thermoelectric properties in the topological insulators: Bi_2Te_3 and Bi_2Se_3 **Q. Jie, Q. Li**	**B5-3** 14:00-14:15 Page 52 Modeling of coupled thermal-electrical-mechanical phenomena in degradation of wide bandgap electronic devices **J. Zhang, E. Heller, D. L. Dorsey**	**C5-3** 14:00-14:15 Page 85 Thermoelectric properties of Nb-doped highly ordered mesoporous TiO_2 **S. Y. Jung, T. J. Ha, W. S. Seo, Y. S. Lim, H. H. Park**
	A5-4 14:25-14:40 Page 22 New co-ball-milling synthesis and microstructure analysis of different $AgPb_mSbTe_{m+2}$-type materials **D. Petri, S. Schlecht, M. Nebe, G. Homm, P. J. Klar, U. Schürmann, L. Kienle, A. Schmidt, A. Sesselmann, E. M üller**	**B5-4** 14:15-14:40 Page 52 Transient electro thermal transport in thermoelectric devices **A. Shakouri, Q. E. Zhou, Z. X. Bian, Y. Ezzahri**	**C5-4** 14:15-14:30 Page 85 Thermoelectric properties of $CuFeO_2$ enhanced by nanovoid structure **T. Nozaki, S. Hanasaka, K. Hayashi, Y. Miyazaki, T. Kajitani**
	A5-5 14:40-14:55 Page 22 High thermoelectric performance in PbTe due to large nanoscale Ag2Te precipitates and La doping **Y. Z. Pei, J. L. Falk, D. L. Medlin, G. J. Snyder**	**B5-5** 14:40-14:55 Page 53 Thermoelectric power module from oxide ceramics **C. L. Wang, H. C. Wang, Y. Sun, W. B. Su, J. Liu, H. Peng, L. M. Mei**	**CHANGED!** **C5-5** 14:30-14:45 Page 130 Thermoelectric power factor and oxygen nonstoichiometry of $SrRu_{1-x}Ti_xO_3$ solid solutions **H. Jang, H. I. Yoo**
	A5-6 14:55-15:10 Page 23 Thermoelectric properties of $(TlSbTe_2)_x(Tl_{0.02}Pb_{0.98}Te)_{1-x}$ with resonant states and reduced thermal conductivity **H. Wang, K. Kurosaki, S. Yamanaka, G. J. Snyder**	**B5-6** 14:55-15:10 Page 53 Thermo-mechanical analysis of thermoelectric modules **C. K. Liu, M. C. Hsieh, M. J. Dai, C. Y. Hsu, R. M. Tain**	**C5-6** 14:45-15:00 Page 86 Unconventional reduction of lattice thermal conductivity in metal oxides **M. Ohtaki, T. Masuda, S. Teraoka, K. Yamamoto**
		B5-7 15:10-15:25 Page 54 Thermoelectric power generation using Ba-Ga-Sn clathrate module **A. Yamamoto, K. Kishimoto, K. Nagase, H. Obara, K. Ueno, T. Koyanagi, K. Akai, T. Taguchi, Y. Kouno, K. Fukuda, Y. Saiga, T. Takabatake**	**C5-7** 15:00-15:25 Page 87 Stae-of-the-art of thermoelectric materials research in nano-structure lab. of JFCC **S. Tanemura, R. Huang, H. Kuwabara, Y. Ikuhara, H. Moriwake, T. Hirayama**
15:25	Coffee break		

June 1, Tuesday

Time	Room A	Room B	Room C
	A6 Skutterudites Chair: Jean-Pierre Fleurial, Ctirad Uher	B6 Novel materials I Chair: Joseph Heremans, Takao Mori	C6 Theory II Chair: Horst Brodowsky, Wenqing Zhang
15:40	**A6-1** 15:40-16:05 Page 23 Recent advances in skutterudite-based thermoelectrics **C. Uher**	**B6-1** 15:40-15:55 Page 54 Origin of low thermal conductivity in boride compounds **T. Mori, J. Martin, G. Nolas, T. Shishido, K. Nakajima**	**C6-1** 15:40-15:55 Page 87 Towards a first-principles method for calculating thermal conductivity **A. Henry, D. J. Singh**
		B6-2 15:55-16:10 Page 55 Thermoelectric properties of layered zinc antimonide $R_{1-x}A_xZnSbO$ (R = La, Ce; A = Ca, Sr) with low thermal conductivity **T. Suzuki, Y. Taguchi, Y. Tokura**	**C6-2** 15:55-16:10 Page 88 Inhomogeneous thermoelectric materials study using linear response approach **F. Gascoin, C. Goupil, A. Papavero**
	A6-2 16:05-16:30 Page 24 High temperature thermoelectric properties of Co_4Sb_{12} based skutterudites with multiple fillers: $Ce_zIn_xYb_yCo_4Sb_{12}$ **J. W. Graff, J. Y. Peng, J. He, Z. Su, P. N. Alboni, S. Zhu, T. M. Tritt**	**CHANGED!** **B6-3** 16:10-16:25 Page 193 Thermoelectricity near the metal-insulator transition in $Fe(Sb_{1-x}Te_x)_2$ **P. Sun, M. Søndergaard, S. Johnsen, B. B. Iversen, M. Baenitz, F. Steglich**	**C6-3** 16:10-16:25 Page 88 On electronic structure engineering and thermoelectric performance **C. Jeong, M. Lundstrom**
		B6-4 16:25-16:40 Page 56 Optimizing and manipulating transport in lanthanum telluride **A. F. May, J. P. Fleurial, E. Flage-Larsen, G. J. Snyder**	**C6-4** 16:25-16:50 Page 89 Thermal transport in nanostructured semiconductors: a microscopic view from atomistic simulations **G. Galli**
	A6-3 16:30-16:45 Page 24 New multifilled p-type didymium skutterudites with ZT > 1.2 **G. Rogl, A. Grytsiv, P. Rogl, E. Bauer, M. Zehetbauer**	**B6-5** 16:40-16:55 Page 56 Preparation and thermoelectric properties of self-doped $LnGd_{1+x}S_3$ (Ln: La, Sm) and Mn-doped Gd_2S_3 **M. Ohta, S. Hirai, V. V. Sokolov, T. Kuzuya, V. V. Bakovets, S. M. Luguev**	
	A6-4 16:45-17:00 Page 25 Simulation of the residual stresses in the skutterudite bulk sintering by the high pressure method **Y. Li, K. Y. Cai, G. D. Li, Q. J. Zhang**	**B6-6** 16:55-17:10 Page 57 Thermoelectric properties of narrow gap intermetallic compound Ga_2Ru: effect of Re substitution for Ru atoms **Y. Takagiwa, Y. Matsubayashi, J. T. Okada, K. Kimura**	**C6-5** 16:50-17:15 Page 89 A few aspects on thermoelectric materials design through understanding contradicted physical properties **W. Zhang, L. D. Chen, J. H. Yang, X. Shi, L. L. Xi, X. Y. Shi**
	A6-5 17:00-17:15 Page 25 Thermoelectric properties of triple-filled $Ba_xYb_yIn_zCo_4Sb_{12}$ skutterudites **S. Ballikaya, G. Y. Wang, K. Sun, C. Uher**	**B6-7** 17:10-17:25 Page 57 Crystal structures and thermoelectric properties of complex metallic alloys in Ru-Sb-Zn ternary system **D. B. Xiong**	
	A6-6 17:15-17:30 Page 26 X-ray photoelectron spectroscopy of skutterudite compounds: implication for orbital hybridization and electron transition **P. Wei, B. Ma, J. Yu, W. Y. Zhao, Q. J. Zhang**		**C6-6** 17:15-17:30 Page 90 Thermoelectric figure of merit in the quantum spin Hall systems **R. Takahashi, S. Murakami**
	CHANGED! **A6-7** 17:30-17:45 Page 39 Design and fabrication of $CoSb_3$-based thermoelectric module and device **S. Q. Bai, X. Y. Li, L. D. Chen**	**B6-8** 17:25-17:50 Page 58 Resonant levels increase the thermoelectric figure of merit **J. P. Heremans**	**C6-7** 17:30-17:45 Page 90 Diffusive thermoelectric power in highly asymmetric bilayer graphene nanoribbon **S. Bhattacharya, R. C. Mallik**
17:50	Poster Session 2		

June 2, Wednesday

Time	Room A	Room B	
	A7 Nanostructures & composites II Chair: Terry Tritt, Hui Gu	B7 Tellurides III Chair: Yaniv Gelbstein, Hsin Wang	
8:30	**A7-1** 8:30-8:55 Page 26 Mechanism of microstructure evolution in Yb-filled skutterudite structure: a competition between solution and exclusion **H. Gu, J. Ding, L. D. Chen**	**B7-1** 8:30-8:45 Page 58 Thermoelectric properties of p-type $Bi_{0.5}Sb_{1.5}Te_{2.7}Se_{0.3}$ fabricated by ultra high pressure method **G. Y. Xu, X. F. Wu, Y. C. Wang, C. Y. Zhang, S. T. Niu**	
	A7-2 8:55-9:10 Page 27 Thermoelectric properties of N- and P-type nano-structured SiGe alloys: life test results **T. Caillat, P. Gogna, C. K. Huang, B. Cheng, J. P. Fleurial**	**B7-2** 8:45-9:00 Page 59 Phonon spectroscopy in thermoelectric antimonides and tellurides **R. P. Hermann**	
	A7-3 9:10-9:25 Page 27 Mechanisms of improvement of thermoelectric efficiency in bulk nanostructured polycrystals **L. P. Bulat, D. A. Pshenai-Severin, I. A. Drabkin, V. V. Karataev, V. B. Osvenskii, Y. N. Parkhomenko, G. I. Pivovarov, V. T. Bublik, N. Y. Tabachkova**	**B7-3** 9:00-9:25 Page 59 Development of Bi-Sb-Te-Se based thermoelectric materials in China **C. C. Ge, Y. H. Zhang, G. Y. Xu, T. J. Chen, S. J. Peng**	
	A7-4 9:25-9:40 Page 28 Thermoelectric properties of metal(Cu)-metal oxide(Cu_2O) composites **N. J. Heo, H. I. Yoo**	**B7-4** 9:25-9:40 Page 60 Enhanced thermoelectric performance and microstructure in $(GeTe)_{90}(Ag_ySb_{2-y}Te_{3-y})_{10}$ System **S. H. Yang, S. N. Zhang, H. L. Gao, C. Yu, J. J. Shen, T. J. Zhu, X. B. Zhao**	
	A7-5 9:40-9:55 Page 28 Bulk thermoelectric silicides with the chimney-ladder structure containing phonon-blocking and electron-transmitting interfaces **N. L. Okamoto, T. Koyama, H. Adachi, K. Kishida, K. Tanaka, H. Inui**	**B7-5** 9:40-9:55 Page 60 High-temperature thermoelectric performance of PbSe **D. Parker, D. J. Singh**	
	A7-6 9:55-10:10 Page 29 Effect of microstructure on magnetic properties of Ni-Zn ferrites from wood template **C. K. Sia, N. Adachi, T. Ota**	**B7-6** 9:55-10:10 Page 61 Thermoelectric properties of bismuth telluride and vanadium oxide nanocomposite **C. Zhou, J. Sakamoto, D. Morelli**	
10:10	Coffee break		

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	A8 Novel materials II Chair: Donald Morelli, Peter Rogl	B8 Modelling II Chair: Shiro Tsuda, Zhixi Bian	
10:25	**A8-1** 10:25-10:40 Page 29 Organic-inorganic nanohybrids as novel thermoelectric materials: hybrids of polyaniline and bismuth(III) telluride nanoparticles **N. Toshima, M. Imai, S. Ichikawa**	**B8-1** 10:25-10:40 Page 61 An introduction to system level steady-state and transient modeling and optimization of high power density thermoelectric generator devices made of segmented thermoelectric elements **D. Crane**	
	A8-2 10:40-10:55 Page 30 GaN-based materials for next generation thermoelectric devices and applications **N. Lu, E. Hurwitz, J. White, I. Ferguson**	**B8-2** 10:40-10:55 Page 62 Thermal modeling of solar parabolic dish thermoelectric generator **M. Eswaramoorthy, S. Shanmugam**	
	A8-3 10:55-11:10 Page 30 Low-dimensional thermoelectric materials **L. Miao, S. Tanemura, G. Xu**	**B8-3** 10:55-11:10 Page 62 An electro-thermal model of thermoelectric modules for generating mode in steady state **W. Chimchavee**	
	A8-4 11:10-11:25 Page 31 Cage-shaped molybdenum chalcogenides containing Mo_9 clusters: a promising thermoelectric material with a significant low thermal conductivity **T. Zhou, B. Lenoir, A. Dauscher, M. Potel, P. Gougeon**	**B8-4** 11:10-11:25 Page 63 Building and verification of temperature-dependant model for thermoelectric generator modules **H. L. Tsai, Y. D. Wang**	
	A8-5 11:25-11:40 Page 31 Chalcogenide glasses as prospective thermoelectric materials **A. P. Gonçalvesa, E. B. Lopesa, L. M. Ferreirab, G. Delaizirc, O. Rouleauc, C. Godart**	**B8-5** 11:25-11:40 Page 63 Computational modeling as a design tool for implementation of thermoelectric waste heat recovery in a marine waste incinerator **N. R. Kristiansen, H. K. Nielsen, L. A. Rosendahl**	
	A8-6 11:40-11:55 Page 32 Thermoelectric properties of an Al added InSnTe based alloy **H. Fu, P. Z. Ying, J. L. Cui, Y. M. Yan, X. J. Zhang**	**B8-6** 11:40-11:55 Page 64 Efficient water heating using thermoelectric heat-pumps **Z. X. Bian, A.Shakouri**	
12:00	Lunch		

June 2, Wednesday

Time	Room A	Room B	
	A9 Clathrates & Zintl compounds II Chair: Toshiro Takabatake, Mogens Christensen	B9 Application of TEG Chair: Jingfeng Li, Kuanrong Qiu	
13:30	**A9-1** 13:30-13:55 Page 32 Chemical bonding and thermoelectric activity of new intermetallic clathrates **Y. Grin, U. Aydemir, M. Baitinger, B. Böhme, H. Borrmann, C. Candolfi, W. Carrillo-Cabrera, Y. Liang, N. Oeschler, A. Ormeçi, W. Schnelle, I. Veremchuk, H. Zhang**	**B9-1** 13:30-13:45 Page 64 Development of thermal rectifier usable at high temperature **T. Takeuchi, H. Goto, M. Mikami**	
	A9-2 13:55-14:20 Page 33 Multicomponent clathrates $EA_8M_xGe(Si)_{46-x-y}\square_y$ of type I **P. Rogl, N. Melnychenko, N. Nasir, I. Bednar, I. Zeiringer, A. Grytsiv, E. Bauer**	**B9-2** 13:45-14:00 Page 65 Potential applications of thermoelectric materials **H. Li, J. Harvey, Q. Lu, D. Jones**	
	A9-3 14:20-14:35 Page 33 Thermoelectric clathrates investigated by inelastic neutron scattering **M. Christensen**	**B9-3** 14:00-14:15 Page 65 Electric power generation from thermoelectric cells by using parabolic solar concentrator **H. N. Fan, A. Akbarzadeh, R. Singh**	
	A9-4 14:35-14:50 Page 34 Physical properties created by endohedral nano spaces in clathrates **K. Tanigaki, J. Tang, J. T. Xu, H. Khuong**	**B9-4** 14:15-14:30 Page 66 Thermoelectric energy harvesting from tunnels **A. Moser, M. Freunek, P. Woias**	
	CHANGED! **A9-5** 14:50-15:05 Page 35 First-principles study of electronic structure in semiconducting Sn clathrates **K. Akai, Y. Kono, K. Kishimoto, S. Yamamoto, T. Koyanagi**	**B9-5** 14:30-14:55 Page 66 Recent unique applications for thermoelectric modules **S. Tsuda, K. Ishibashi, E. Mankarios**	
	CHANGED! **A9-6** 15:05-15:30 Steadily improved thermoelectric figure of merit from single- to double-, and finally multiple-filled skutterudites **X. Shi, J. Yang, S. Q. Bai, J. H. Yang, H. Wang, M. F. Chi, W. Q. Zhang, L. D. Chen**	**B9-6** 14:55-15:10 Page 67 Development of thermoelectric self-powered heating equipment **K. Qiu, A. C. S. Hayden**	
		B9-7 15:10-15:25 Page 67 TEG and fuel cell hybrid system **P. Mortensen, A. Enkeshafi, L. A. Rosendahl**	
15:25	Coffee break		

June 2, Wednesday

Time	Chair: Thierry Caillat
15:40	**PL-4** Vehicular thermoelectric applications: new green technology Page 5 **J. W. Fairbanks**
	PL-5 Application of the transverse thermoelectric effects Page 6 **H. J. Goldsmid**
	Closing remark
17:25	
19:30	Banquet

June 3, Thursday

Time	
8:30	Group laboratory tour

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P1-1 Page 92 Electronic structure and thermoelectric properties of misfit layered cobaltite and transition metal doped series **X. M. Min, H. F. Liu, F. Cheng**	**P1-2** Page 92 Simplified theory of diffusive thermal transport in semiconducting carbon nanotubes: a Kane's model approach **S. Bhattacharya, R. C. Mallik**	**P1-3** Page 93 Seebeck coefficient and electrical conductivity in non-parabolic bulk materials **S. Bhattacharya, R. C. Mallik**
P1-4 Page 93 The effect of current field on the sintering of Bi_2Te_3 thermoelectric materials **Q. S. Meng, R. X. Chen, W. H. Fan, L. Q. Wang**	**P1-5** Page 94 Calculation of the thermoelectric power of vanadium, niobium, and tantalum **H. Brodowsky, Q. Y. Chen, Z. L. Xiao, Z. L. Yin**	**P1-6** Page 94 Electronic structure and thermoelectric properties of GeTe-based compounds: first-principles calculations **M. W. Oh, B. S. Kim, S. D. Park, B. K. Min, H. W. Lee**
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P1-10 Page 96 Y-doped Mg_2Si prepared by field-activated and pressure-assisted reactive synthesis **W. H. Fan, Q. S. Meng, L. Q. Wang, B. S. Li, R. X. Chen**	**P1-11** Page 97 Electronic and lattice vibrational properties of $BaSi_2$ from density functional theory calculations **H. Peng, C. L. Wang, J. C. Li, R. Z. Zhang, M. X. Wang, H. C. Wang, Y.Sun**	**P1-12** Page 97 Prediction of reliability on micro thermoelectric module through accelerated life test and physics-of-failure **H. S. Choi, W. S. Seo, S. I. Kim, B. K. Lee, D. K. Choi**
P1-13 Page 98 Analysis of failure mechanism and life prediction of thermoelectric cooling module based on physics-of-failure **H. S. Choi, W. S. Seo, S. I. Kim, B. K. Lee, D. K. Choi**	**P1-14** Page 98 Nano-structured materials for thermoelectric devices **S. V. Ordin, A. J. Zjuzin, Yu. Ivanov, S. Yamaguchi**	**P1-15** Page 99 Effect of compositional variability on the thermoelectric properties of ZrNiSn **K. Furo, H. Muta, K. Kurosaki, S. Yamanaka**
P1-16 Page 99 Thermoelectric properties of ternary $Ga_{20}Sb_{20}Pb$ Alloy **J. L. Cui, Y. M. Yan, P. Z. Ying, H. Fu , X. J. Zhang**	**P1-17** Page 100 High figure of merit nanostructured bulk chalcogenides and new methodology for thermoelectric characterization using thermal microprobe and transient Harman techniques **Y. L. Zhang, E. E. Castillo, T. Borca-Tasciuc, R. J. Mehta, K. Chinnathambi, G. Ramanath**	**P1-18** Page 100 Thermoelectric properties of organic-inorganic composites **R. Yang, F. J. Yi, P. C. Zhai**
P1-19 Page 101 Electronic structure of type-I clathrates $M_8Ga_{16}Ge_{30}$ (M=Ba,Sr, Eu,Yb) from first-principle calculations **D. C. Li, L. Fang, H. B. Ruan, C. Y. Kong**	**P1-20** Page 101 Improved thermoelectric characteristics of Si-doped misfit layered cobaltite **C. J. Liu, N. V. Nong, Y. C. Huang, C. S. Jhang**	**P1-21** Page 102 Metastable void filling In caged skutterudite $CoSb_3$ **L. L. Xi, Z. Xiong, J. Yang, W. Q. Zhang, L. D. Chen**
P1-22 Page 102 Ab initio study of native defects in $CoSb_3$: explanation of the temperature dependence of Seebeck coefficient **C. H. Park, Y. S. Kim**	**P1-23** Page 103 Synthesis and thermoelectric properties of bulk n-type $In_{1.8}Cu_{0.2}Se_3$ alloy **J. L. Cui, X. J. Zhang, P. Z. Ying, H. Fu, Y. M. Yan**	**P1-24** Page 103 First principle calculation of electronic structure and thermoelectric transport property of $CaMnO_3$ **F. P. Zhang, H. Peng, X. Zhang, Q. M. Lu, J. C. Li, M. X. Wang, J. X. Zhang**

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P1-31 Page 107 Temperature distribution in two-dimensional electron gases under a strong magnetic field **N. Hirayama, A. Endo, K. Fujita, Y. Hasegawa, N. Hatano, H. Nakamura, R. Shirasaki**	**P1-32** Page 107 Thermal managements of graphene nanoribbon under strains **N. Wei, J. C. Zheng**	**P1-33** Page 108 Thermoelectric properties of PbTe at high pressure: an ab initio study **L. Q. Xu, N. Wei, J. C. Zheng**
P1-34 Page 108 Ab initio investigations of the electronic and phononic structure of ZnO/ZnS interfaces **M. Bachmann, C. Heiliger**	**P1-35** Page 109 Calculation of thermoelectric transport properties in heterostructures using a NEGF formalism in a 1D-model **M. Bachmann, M. Czerner, C. Heiliger**	**P1-36** Page 109 The role of characteristic length and pore geometry in decreasing the thermal conductivity of porous silicon: a renovated thermal conductivity model **L. C. Liu, M. J. Huang**
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P1-40 Page 111 Molecular dynamics study on the structural and mechanical properties of skutterudite $CoSb_3$: size effect **X. Q. Yang, A. Zhou, L. S. Liu, Q. J. Zhang, P. C. Zhai**	**P1-41** Page 112 Molecular dynamics study of size and temperature effects on the mechanical properties of Bi_2Te_3 nanowire **Y. Tong, F. J. Yi, L. S. Liu, Q. J. Zhang**	**P1-42** Page 112 Quantum oscillation of the Peltier effect in a pseudo-one-dimensional system with a spin-orbit interaction **H. Nakamura, N. Hatano, R. Shirasaki, N. Hirayama, K. Yonemitsu**
P1-43 Page 113 Molecular dynamics simulation of the thermal conductivities of Si nanowires with various roughnesses **Y. R. Chen, M. S. Jeng, Y. W. Chou, C. C. Yang**	**P1-44** Page 113 Numerical study of effect of scattering process on transport properties in Bi nanowire **Y. Ichige, T. Matsumoto, T. Komine, R.Sugita, T. Aono, M. Murata, D. Nakamura, Y. Hasegawa**	**P1-45** Page 114 Numerical study of effect of surface potential on transport properties in Bi nanowires **T.Matsumoto, Y. Ichige, T. Komine, R. Sugita, T. Aono, M. Murata, D. Nakamura, Y. Hasegawa**
P1-46 Page 114 Thermal conductivity of nano-porous bismuth antimony telluride **K. Miyazaki, S. Tanaka, M. Takashiri**	**P1-47** Page 115 Effect of nano wires on thermoelectric properties of nano porous materials **W. M. Wu, G. Y. Xu**	**P1-48** Page 115 On the theory of anisotropic thermoelement **L. I. Anatychuk, A. V. Prybyla**

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P1-49 Page 116 Detailed modeling and irreversible transfer process analysis on a multi-element thermoelectric generator system **H. Xiao, X. L. Gou, S. W. Yang**	**P1-50** Page 116 Influence of filler element on thermoelectric properties of multi-filled skutterudites **A. Grytsiv, N. Melnychenko-Koblyuk, L. Zhang, E. Royanian, P. Rogl, E. Bauer**	**P1-51** Page 117 Thermoelectric properties of Ca-filled $CoSb_3$-based skutterudites synthesized by mechanical alloying **K. H. Park, J. Y. Jung, W. T. Seo, S. C. Ur, I. H. Kim**
P1-52 Page 117 New mischmetal (Mm) based partially filled thermoelectric skutterudites $Mm_xIn_yCo_4Sb_{12}$ **C. Godart, S. K. Dhar, G. Delaizir, E. Leroy, B. Villeroy, O. Rouleau**	**P1-53** Page 118 Electronic structures and transport properties of $R_{0.5}Fe_4Sb_{12}$ and $R_1Fe_4Sb_{12}$ **A. Zhou, L. S. Liu, C. C. Shu, P. C. Zhai, W. Y. Zhao, Q. J. Zhang**	**P1-54** Page 118 High performance nanostructured Ge and Te co-doped skutterudite $Co_4Sb_{11}Ge_{1-x}Te_x$ prepared by rapid solidification **X. L. Su, H. Li, X. F. Tang, Q. J. Zhang**
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P1-58 Page 120 Structure and thermoelectric properties of $CoSb_3$ under thermal and cyclic compressive loads **P. F. Wen, P. Li, Q. J. Zhang, F. J. Yi, L. S. Liu, P. C. Zhai**	**P1-59** Page 121 Low thermal conductivity and enhanced thermoelectric performance in In and Lu double-filled $CoSb_3$ skutterudite **G. D. Tang, Z. H. Wang, X. N. Xu, L. Qiu, Y. W. Du**	**P1-60** Page 121 Crystal structure and transport properties of the skutterudite-derivative $RhGe_{1.5}Se_{1.5}$ phase **Y. Liang, W. Schnelle, S. Budnyk, Y. Grin**
P1-61 Page 122 Systematic study of high temperature thermoelectric properties of filled skutterudites RFe_4Sb_{12} (R = Ca, Ba, La, Ce, Pr, Sm, Eu, Yb) **P. F. Qiu, J. Yang, R. H. Liu, X. Y. Huang, L. D. Chen, W. Q. Zhang**	**P1-62** Page 122 Manipulation of the thermoelectric properties of ZnO thin films by artificial structuring **G. Homm, F. Gather, S. Petznick, T. Henning, M. Eickhoff, C. Heiliger, B. K. Meyer, P. J. Klar**	**P1-63** Page 123 Thermoelectric properties of ZnO ceramics co-doped with Al and transition metals **H. Yamaguchi, Y. Chonan, Manabu Oda, T. Komiyama, T. Aoyama, S. Sugiyama**
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P1-73 Page 128 Transport and thermoelectric properties of $Ca_{1-x}Sr_xRu_{1-y}Mn_yO_3$ system **T. Ohnishi, M. Naito, S. Mizusaki, Y. Nagata, Y. Noro**	**P1-74** Page 128 Thermoelectric properties of $In_{1.94}Zn_{0.03}Ge_{0.03}O_3$ with Sr_2RuErO_6 composited **B. Cheng, Y. H. Lin, J. L. Lan, Y. liu, C. W. Nan**	**P1-75** Page 129 Influence of thickness and deposition pressure on the Seebeck effect in the Ga-doped ZnO thin films **F. Wu, L. Fang, K. Zhou, Q. L. Huang, H. B. Ruan, D. C. Li, C. Y. Kong**
P1-76 Page 129 Magnetothermoelectric and magnetoresistive properties of Ga-doped ZnO thin films prepared by RF magnetron sputtering **K. Zhou, L. Fang, F. Wu, Q. L. Huang, H. B. Ruan, D. C. Li, C. Y. Kong**	**P1-77**	**P1-78** Page 130 Electrical transport and thermoelectric properties behavior observed in the $YCo_{1-x}MxO_3$ (M: Mn, Ni, Fe) polycrystalline ceramics **D. Li, X. Y. Qin**
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P1-85 Page 134 Role of structure and oxygen loss on high temperature electrical studies on thermoelectric layered oxide materials $Ca_{2.75}Gd_{0.25}Co_{4-x}M_xO_9$ **P. Venkatesan, A. M. Umarji**	**P1-86** Page 134 High temperature electrical studies on thermoelectric composite layered oxide materials $Ca_{3-X}Na_XCo_4O_9$ **P. Venkatesan, A. M. Umarji**	**P1-87** Page 135 Thermoelectric properties of SnO_2 ceramics doped with Sb and Zn **S. Yanagiya, N. V. Nong, J. Xu, S. Monica, N. Pryds**
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P1-91 Page 137 Intrinsic thermal stability of thermoelectric Zn_4Sb_3 in Ar **H. Yin, B. L. Pedersen, B. B. Iversen**	**P1-92** Page 137 Annealing effect on electrical properties of thermoelectric BiSbTe films **W. C. Fang, M. S. Leu**	**P1-93** Page 138 Thermoelectric properties of nanostructured MnTe-PbTe with spinodal decomposition **Q. C. Zhang, Y. Liu**
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