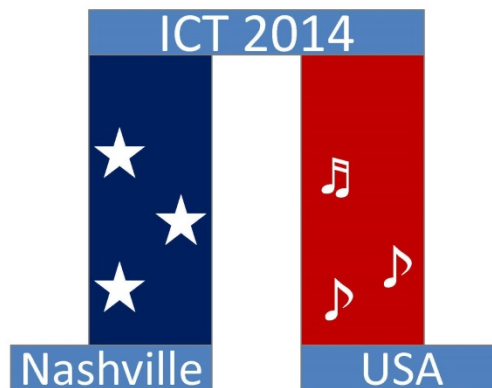


ICT2014

INTERNATIONAL CONFERENCE ON THERMOELECTRICS

NASHVILLE, TN USA

JULY 6-10, 2014



A conference organized under the auspices of the International Thermoelectrics Society

Welcome Message

The international conference on thermoelectrics is the premier annual conference dedicated to thermoelectric materials and applications. This year's program includes more than 500 presentations covering all areas of thermoelectrics research from fundamental aspects of thermoelectric effects and thermoelectric materials to module fabrication and applications. We are delighted to host the conference in Nashville, Tennessee, which is also known as Music City, USA. We hope that all participants will have an enjoyable time in Nashville and a scientifically stimulating and productive conference. Welcome to ICT2014.

Hsin Wang and David J. Singh

Activity Locator

Sunday July 6:

Registration: 3:00 - 8:00 PM, East Ballroom Foyer

Reception (Hors d'oeuvre's in lieu of dinner): 6:00 - 8:00 PM, East Ballroom

Monday, July 7:

Registration: 7:30 AM – 5:00 PM, East Ballroom Foyer

Continental Breakfast Available: 7:30 AM, Grand Ballroom

Plenary Session: 8:00 AM, Grand Ballroom

Parallel Sessions: **A:** NCC 204, **B:** NCC 205, **C:** NCC 206

Lunch: 12:00 – 1:00 PM, NCC Level 2

Tuesday, July 8:

Registration: 7:30 AM – 5:00 PM East Ballroom Foyer

Continental Breakfast Available: 7:30 AM, NCC Level 2

Parallel Sessions: **A:** NCC 204, **B:** NCC 205, **C:** NCC 206

Lunch: 12:00 – 1:00 PM, NCC Level 2

Poster Session: Meeting Space Floor 2

Conference Event: 6:30 PM, Country Music Hall of Fame

Wednesday, July 9:

Registration: 7:30 AM – 5:00 PM, East Ballroom Foyer

Continental Breakfast Available: 7:30 AM, NCC Level 2

Parallel Sessions: **A:** NCC 204, **B:** NCC 205, **C:** NCC 206

Lunch: 12:00 – 1:00 PM, NCC Level 2

Poster Session: Meeting Space Floor 2

Banquet: 7:00 PM, East / Center Ballroom

Thursday, July 10:

Registration: 7:30 - 9:00 AM, East Ballroom Foyer

Continental Breakfast Available: 7:30 AM, NCC Level 2

Parallel Sessions: **A:** NCC 204, **B:** NCC 205, **C:** NCC 206

Plenary Session: East / Center Ballroom

Lunch: West Ballroom

We thank our sponsors for their support of the International Conference on Thermoelectrics.

Platinum Sponsors

TEGnology

UT Battelle

Gold Sponsors

Alphabet Energy

C-Therm

Gentherm

GMZ Energy

HotBlock OnBoard

Hot Disk AB

Quick-Ohm

Romny Scientific

ULVAC

Silver Sponsors

aixACCT

American Physical Society

General Motors

Linseis

Netzsch

TA Instruments

Waste Heat Recovery Consortium of Japan

Sunday, July 6, 2014

3:00 PM - 8:00 PM Registration

6:00 PM – 8:00 PM Reception – ICT2014 Program Preview and Introductions by Conference Chair
Hors d'oeuvre's in lieu of dinner.

UT Battelle



*Platinum Sponsor of the
International Conference
on Thermoelectrics*

Monday, July 7, 2014:

- 7:30 Continental Breakfast Available
- 8:00 Conference Opening (Ballroom)
- 8:00 Welcome from Dr. Michelle Buchanan, Oak Ridge National Laboratory
- 8:10 Plenary Session (Chair: Jihui Yang, University of Washington and International Thermoelectrics Society)
- 8:10 Jean-Pierre Fleurial, NASA JPL, "Thermoelectrics in Space: A Success Story"
- 8:45 Outstanding Achievement Award Presentation and Lecture: Professor Mercouri G. Kanatzidis, Northwestern University, "Hierarchical structuring, band alignment and band engineering: The panoscopic approach to thermoelectrics"
- 9:15-9:35 Break
- 9:35-12:00 Parallel Sessions
- A1: Chair: Sabah Bux, NASA JPL
Invited Speaker, H. Kleinke, University of Waterloo
- B1: Chair: Clint Ballinger, Evident Technologies
Invited Speaker: J. Sharp, Marlow Industries
- C1: Chair: Thierry Caillat, NASA JPL
Invited Speaker: E.D. Case, Michigan State University
- 12:00-13:00 Lunch with Poster and Sponsor Booth Viewing
- 13:00-15:10 Parallel Sessions
- A2: Chair: Hsin Wang, ORNL
Invited Speaker: Z. Ren, University of Houston
- B2: Chair: Robin McCarty, Marlow Industries
Invited Speaker: A. Yamamoto, AIST, Japan
- C2: Chair: Jan Konig, Fraunhofer Institute
Invited Speaker: C.W. Maranville, Ford Motor Company
- 15:10-15:25 Break
- 15:25-18:00 Parallel Sessions
- A3: Chair: Jihui Yang, University of Washington
Invited Speaker: Y. Grin, MPI Chemische Physik, Dresden
- B3: Chair: Joseph Heremans, Ohio State University
Invited Speaker: A. Shakouri, Purdue University
- C3: Chair: Clay Maranville, Ford Motor Company
Invited Speaker: G.P. Meisner, General Motors

Tuesday, July 8, 2014:

7:30 Continental Breakfast Available

8:00-9:40 Parallel Sessions

A4: Chair: Ali Shakouri, Purdue University
Invited Speaker: L. Shi, University of Texas, Austin

B4: Chair: David Cahill, University of Illinois
Invited Speaker: X. Tang, Wuhan University

C4: Chair: Giri Joshi, GMZ Energy
Invited Speaker: M. Grayson, Northwestern University

9:40-9:55 Break

9:55-11:50 Parallel Sessions

A5: Chair: Jeff Sharp, Marlow Industries
Invited Speaker: T.J. Zhu, Zhejiang University

B5: Chair: Eldon D. Case, Michigan State University
Invited Speaker: J. Martin, NIST

C5: Chair: Kunihito Koumoto, Nagoya University
Invited Speaker: M. Nohara, Okayama University

11:50-13:00 Lunch with Poster and Sponsor Booth Viewing

13:00-15:40 Parallel Sessions

A6: Chair: Matthew Grayson, Northwestern University
Invited Speaker: M. Nomura, University of Tokyo

B6: Chair: Ctirad Uher, University of Michigan
Invited Speaker: D.G. Cahill, University of Illinois

C6: Chair: Minoru Nohara, Okayama University
Invited Speaker: A. Roch, Fraunhofer Institute

15:40-18:00 Poster Session I

18:30 Conference Event – Country Music Hall of Fame

Wednesday, July 9, 2014

7:30 Continental Breakfast Available

8:00-9:40 Parallel Sessions

A7: Chair: Peter Rogl, University of Vienna

B7: Chair: Gerda Rogl, University of Vienna
Invited Speaker: G.S. Nolas, University of South Florida

C7: Chair: Olivier Delaire, ORNL
Invited Speaker: D. Broido, Boston College

9:40-9:55 Break

9:55-11:40 Parallel Sessions

A8: Chair: Lucas Lindsay, Oak Ridge National Laboratory
Invited Speaker: J. Yang, University of Washington

B8 Chair: Elliot Specht, ORNL
Invited Speaker: Olivier Delaire, ORNL

C8 Chair: Ryoji Funahashi, AIST, Osaka, Japan
Invited Speaker: A. Maignan, CRISMAT, Caen, France

12:00-13:00 Lunch with Poster and Sponsor Booth Viewing

13:00-15:30 Parallel Sessions

A9 Chair: Xun Shi, Shanghai Institute of Ceramics
Invited Speaker: E. Bauer, Technical University of Vienna

B9 Chair: George Nolas, University of South Florida
Invited Speaker: Y. Gelbstein, Ben Gurion University

C9 Chair: Lidong Chen, Shanghai Institute of Ceramics
Invited Speakers: G.J. Snyder, CalTech and S. Danilkin, Bragg Institute, ANSTO

15:30-18:00 Poster Session II

18:00-21:00 Conference Banquet

Speakers:

Jihui Yang, "The International Thermoelectrics Society Annual Business and Awards Presentation"

Yuri Grin, "The Next International Conference on Thermoelectrics"

Thursday, July 10, 2014

7:30 Continental Breakfast Available

8:00-10:00 Parallel Sessions

A10 Chair: Antoine Maignan, CRISMAT, Caen
Invited Speaker: D.T. Morelli, Michigan State University

B10 Chair: Gang Chen, MIT
Invited Speaker: R. Hermann, Forschungszentrum Juelich *and* University of Liege

C10 Chair: David Parker, Oak Ridge National Laboratory
Invited Speaker: P. Rogl, University of Vienna

9:55-10:10 Break

10:10-12:25 Plenary Session (Chair: Hsin Wang, ORNL)

10:10 Gang Chen, Massachusetts Institute of Technology, "Progress and Challenges on Thermoelectric Transport, Materials, Characterization and Systems"

10:45 Jan D. Konig, Fraunhofer IPM, "Comparison of TEG-fabrication Strategies for the Most Promising Materials"

11:20 Lidong Chen, Shanghai Institute of Ceramics, "Challenges in Thermoelectric Device for Power Generation"

11:55 Young Investigator Award Presentation and Award Lecture, Ronggui Yang, University of Colorado, Bolder, "Understanding Phonon Transport and Thermal Conductivity: Multiscale Simulations and Ultrafast Laser-Based Characterization"

12:30 Lunch and Closing – Discussion of Future Directions in Thermoelectrics
Speakers: ITS Board Conference Selection Committee and Host of ICT2016

14:00 Adjourn

Session Chairs

Session chairs are requested to keep the sessions on time. The last speaker has as much right to give his or her presentation and be heard as the first speaker. Chairs may wish to remind speakers to have their laptops ready when their talk is about to begin. Session chairs should ask speakers to leave 2-3 minutes of their time for discussion and questions, and in any case should require that presentations finish within the bounds of the allocated time slot.

Clint Ballinger	B1
Sabah Bux	A1
David Cahill	B4
Thierry Caillat	C1
Eldon Case	B5
Gang Chen	B10
Lidong Chen	C9
Olivier Delaire	C7
Ryoji Funahashi	C8
Matthew Grayson	A6
Joseph Heremans	B3
Giri Joshi	C4
Jan Konig	C2
Kunihito Koumoto	C5
Lucas Lindsay	A8
Antoine Maignan	A10
Clay Maranville	C3
Robin McCarty	B2
Minoru Nohara	C6
George Nolas	B9
David Parker	C10
Gerda Rogl	B7
Peter Rogl	A7
Ali Shakouri	A4
Jeff Sharp	A5
Xun Shi	A9
Elliot Specht	B8
Ctiard Uher	B6
Hsin Wang	A2 and Plenary Thursday
Jihui Yang	Plenary Monday and A3

Conference Event

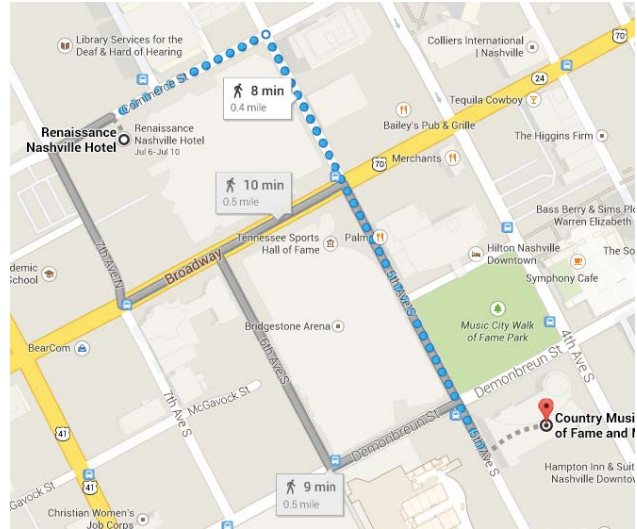
Evening of Music at the Country Music Hall of Fame **Starting Tuesday at 6:30 PM**

Please join us for a special event at the Country Music Hall of Fame. Thanks to generous support from our sponsors, and especially entertainment provided by a gift from UT Battelle, we are able to offer a very special evening. The Country Music Hall of Fame is within easy walking distance of the hotel. However, please let the registration desk know if you need transportation.

Curtis Blackwell and the Dixie Bluegrass **Boys Bluegrass Band, Otto, NC**

The Dixie Bluegrass Boys trace their band's origins to 1960, when 17-year-old Curtis Blackwell and two other young men in Toccoa, Georgia, won a radio talent contest. Brothers Curtis and Haskell Blackwell and their friend Junior Crowe (who would grow up to be the father of bluegrass' famous Crowe Brothers) were awarded the top prize, a chance to perform at the Grand Ole Opry. Four others were quickly added to the band, including bass player Sam Cobb, who is still with the Dixie Bluegrass Boys. For the next ten years, the band toured the Eastern United States, playing at many festivals and bluegrass venues. 1970 was a big year for the Curtis Blackwell and the Dixie Bluegrass Boys, the year they won the band contest at the Union Grove Fiddlers Convention, and recorded an album on the County label. The band members then went their separate ways for several years, going on the road variously with Bill Monroe's Bluegrass Boys, for whom Curtis sang lead, Jim and Jesse, and the Boys from Indiana. After reorganizing, with new artists on some instruments, Curtis Blackwell and the Dixie Bluegrass Boys resumed touring and recording, and were regulars on the bluegrass circuit throughout the 1980s and '90s. Almost fifty years later, and now with a home base in Macon County, North Carolina, the Dixie Bluegrass Boys consist of founding members Curtis Blackwell and Sam Cobb, joined by banjo player Charles Wood, fiddler Chuck Nations, and mandolinist Vic Blackwell. Otto, North Carolina, resident Curtis Blackwell is honored in the Atlanta Country Music Hall of Fame. In 2012 and 2014, the Dixie Bluegrass Boys performed a 12-show tour in Ireland and were warmly received.

Charles Wood: Charles plays banjo in the Curtis Blackwell Band as well as several other bands. Charles has won banjo contests from Maine to Colorado and all points between. He is a two-time Winfield National Banjo Champion (1999 and 2006), Colorado Rockygrass Banjo Champion, Renofest S.C. State Banjo Champion, Merlefest Banjo Champion, Georgia State Banjo Champion, and more. In 2005 he performed with Steve Martin, Earl Scruggs, Peter Wernick and Tony Ellis in concert in New York City and on The David Letterman Show—"Men With Banjos Who Know How to Use Them". He has performed on Garrison Keillor's Prairie Home Companion show and has toured extensively in Europe. Charles is a consummate musician whose playing style encompasses musical genres from traditional Bluegrass to Classical.



TEGNOLOGY

Thermo Electric Energy

-----○ Recover waste heat with thermo electric modules

Did you know that...

...every year, waste heat costs the global economy
\$10,000,000,000,000 - think what just 1 % would mean...

Together, we can make the change!

BENEFITS OF THE THERMO ELECTRIC MODULE:

- **LOW ENVIRONMENTAL IMPACT**
Lead free. No legislative issues.
- **Zn₄Sb₃ / Mg₂Si CONSTRUCTION**
Lower cost, high temperature operation.
- **OPERATE AT 400 DEGREES C**
Four times the power compared to other alternatives.
- **NO TELLURIUM**
Raw material cost down by factor 100.
- **ANTIMONY IS 200 TIMES MORE ABUNDANT THAN TELLURIUM**
Supply is secure.

LINSEIS

THERMAL ANALYSIS

Products

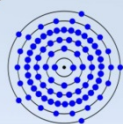
- Thin film & bulk from 80 nm to several mm
- Seebeck Effect
- Electric resistivity
- Thermal conductivity
- Thermal diffusivity
- Hall effect
- Mobility
- Specific heat
- Thermal expansion

www.linseis.com



The American Physical Society (APS) is pleased to announce *Physical Review Applied*, a new journal dedicated to publishing the highest quality papers at the intersections of physics and engineering.

journals.aps.org/prapplied



Romny Scientific, Inc.

Romny Provides Volume Scalable Power Generation

Magnesium Silicide Materials

N and P Type Complimentary N and P type materials provide high performance and reliability due to their matched thermal expansion,

Simple 2 Step Synthesis Fully dense elements formed in less than 20 minutes in a scalable batch and continuous processing. No spark plasma sintering, no hot pressing, no vacuum systems.

Earth Abundant, Volume Scalable No class of material is found more abundantly. More than 7,000 tons of magnesium and more than 7,000,000 tons of silicon are produced each year, providing scalability and cost stability

Thermoelectric Modules

Unprecedented Power / \$ With the right materials and right module architecture, \$1/Watt is possible

High Temperature Operation Modules optimized for heat sources hotter than 600°C



Romny Scientific, Inc.
 1192 Cherry Avenue
 San Bruno, CA, USA
www.romny-scientific.com
info@romny-scientific.com

C-THERM TCI™

Thermal Conductivity Analyzer



FAST

Simple, accurate testing.

VERSATILE

Test solids, liquids, powders and pastes.

NON-DESTRUCTIVE

Unlimited sample size.

The fastest, easiest way to measure the thermal conductivity of thermoelectrics.



WWW.CTHERM.COM/THERMOELECTRICS

Advanced Ceramics Testing



Pushing the Boundaries in Measurement of Thermal Diffusivity, Specific Heat and Thermal Conductivity



The new flash analyzer LFA 467 *HyperFlash* offers:

- Broadest temperature range available, from -100°C to 500°C
- Sample throughput up to 4 times higher due to sample holder for 16 samples
- *ZoomOptics* for more precise measurement results without measurement errors
- Ultra-fast recording of measurement data for thin samples (2 MHz)

NETZSCH

NETZSCH Instruments
North America, LLC
Tel.: (+1) 781 272 5353
nib-sales@netsch.com
www.netsch.com/n15840

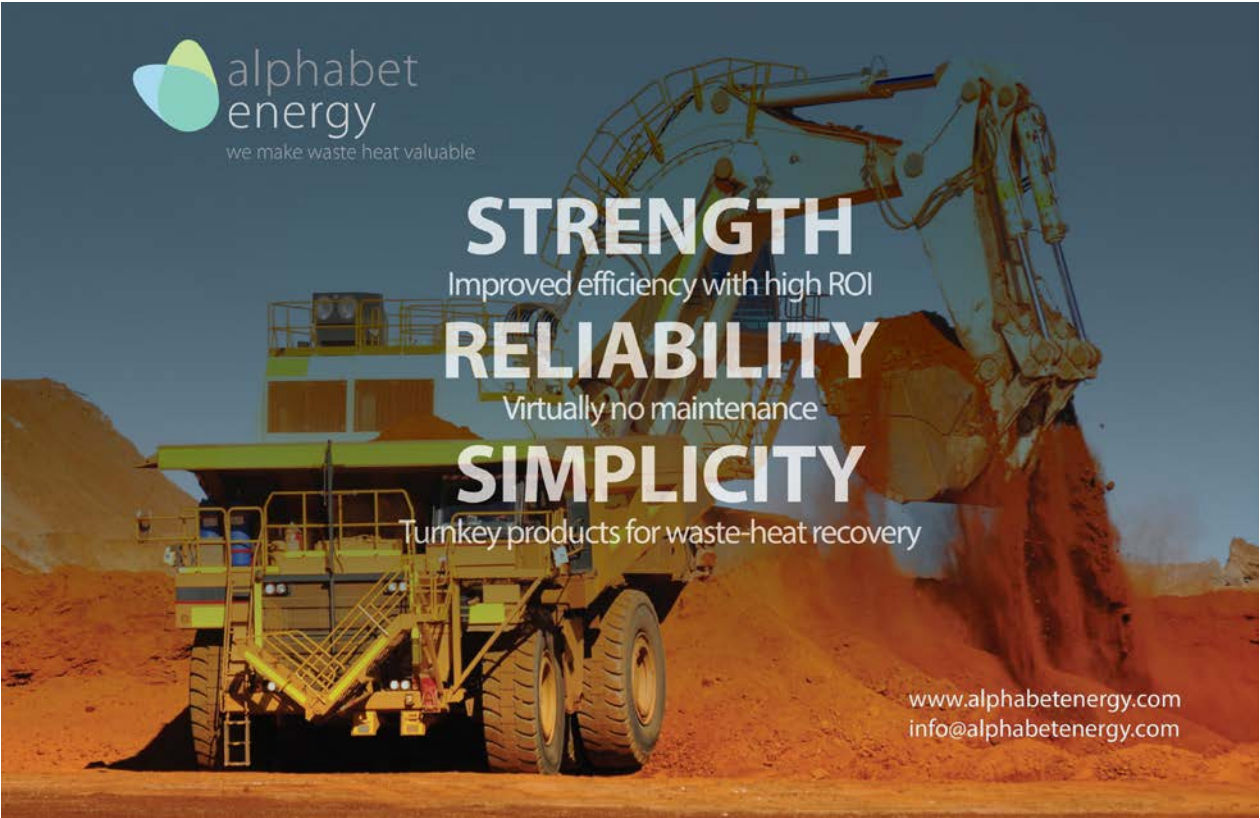


**Got a hot
application?**

We love that!

GMZ Energy's nanostructured half-Heusler TEG modules handle tough real-world environments where a high-temperature heat source is present. Their 600°C hot side temperature capability and extreme mechanical robustness lets them go where other TEGs can't. Give us call. We would love to talk to you about how our TEGs can transform your application.

www.gmzenergy.com



 **alphabet
energy**
we make waste heat valuable

STRENGTH

Improved efficiency with high ROI

RELIABILITY

Virtually no maintenance

SIMPLICITY

Turnkey products for waste-heat recovery

www.alphabetenergy.com
info@alphabetenergy.com

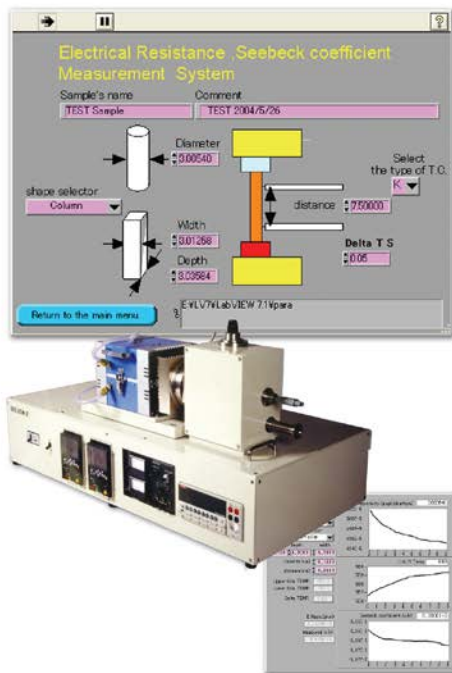


Hot Disk[®]

Analysing thermal properties

www.hotdiskinstruments.com

ZEM-3 Measures Seebeck Coefficient and Electrical Resistivity



It's easy to accurately measure the thermoelectric effect with the ZEM-3 from ULVAC. ZEM-3 automatically measures both the Seebeck Coefficient and Electrical Resistivity of bulk samples, thin sheet or deposited thin film thermoelectric materials.

The bench top, computer-controlled ZEM-3 features:

- Fully automatic operation
- Operating range from -80 to 1,000°C
- Easy sample loading and data analysis

Just enter your sample geometry, experimental parameters and data reporting preferences and the ZEM-3 does the rest. For the best in accurate and repeatable measurement, choose the ZEM-3.

With ZEM-3 –
Just run the samples!

ULVAC

ULVAC Technologies, Inc
Methuen, MA 01844
Phone: 978-686-7550
www.ulvac.com
sales@us.ulvac.com

Session A1: Monday, July 7, 2014

Chair: Sabah Bux, NASA JPL

9:35 (Invited) Q. Guo and **H. Kleinke**, Univ. of Waterloo, *Thermoelectric Thallium Tellurides with zT above Unity*

10:00 Peng Gao¹, Isil Berkun², Xu Lu³ and Tim Hogan^{1,2}, ¹Department of Chemical Engineering and Materials Science, Michigan State University, ²Department of Electrical and Computer Engineering, Michigan State University, ³Department of Physics and Astronomy, Michigan State University, *Reduced lattice thermal conductivity in the high-power-factor $Mg_2Si_{0.4}Sn_{0.6}$ materials by Bi-doping*

10:15 A. S. Tazebay and C. Yu, Texas A&M University Mechanical Engineering Dept., *Reducing thermal conductivity by adding nanoparticles into n-type Mg_2Si - Mg_2Sn solid solutions*

10:30 Yoshisato Kimura, Ayaka Mori, Koichiro Takeno and Yaw Wang Chai, Tokyo Institute of Technology, *Microstructure control on β - $FeSi_2$ -base thermoelectric alloys for fabrication process development*

10:45 J. de Boor¹, T. Dasgupta¹, H. Kolb¹, C. Compere¹, K. Kelm¹, E. Mueller^{1,2}, ¹Institute of Materials Research, German Aerospace Center, Linder Höhe, 51147 Köln, Germany, ²JLU Gießen, Germany, *Microstructural effects on thermoelectric efficiency: a case study on Mg_2Si*

11:00 Payam Norouzzadeh, Daryoosh Vashaee, Oklahoma State University, *Beneficial and detrimental contributions of intervalley scattering to thermoelectric properties of materials with multivalley bandstructure*

11:15 Steven N. Girard,¹ Tyler J. Slade,¹ Xi Chen,² Fei Meng,¹ Li Shi,² and Song Jin¹, ¹Department of Chemistry, University of Wisconsin – Madison, Madison WI 53706, ²Department of Mechanical Engineering, University of Texas – Austin, Austin TX 78712, *Nanostructured Higher Manganese Silicides Synthesized by Magnesioreduction in Molten Salt Fluxes*

11:30 T. Mori^{1,2,3}, C. Nethravathi¹, R. Maki^{1,2}, H. Nishijima^{1,2}, K. Yubuta⁴, T. Shishido⁴, X. J. Wang⁵, D. Cahill⁵, ¹National Institute for Materials Science (NIMS), ²Univ. of Tsukuba, ³Hiroshima Univ., ⁴Tohoku Univ., ⁵Univ. of Illinois, *Finding New Routes to Control Thermal Conductivity*

11:45 Emmanuel Combe¹, Ryoji Funahashi¹, Feridoon Azough², Tristan Barbier¹, Robert Freer², ¹AIST Kansai, Osaka, Japan, ²School of Materials, Univ. of Manchester, United Kingdom, *Thermoelectric properties of p-type $Bi_2Sr_2Co_2O_x$ bulks prepared by a partial melting method followed by a hot pressing process*

Session B1: Monday, July 7, 2014

Chair: Clint Ballinger, Evident Technologies

9:35 (Invited) J. Sharp and J. Bierschenk, Marlow Industries, Inc., *The Prevalence of Standard Large Modules in Thermoelectric Applications*

10:00 D.T. Crane, A. Lorimer, C. Hannemann, J. Reifenberg, L. Miller, M. Scullin, Alphabet Energy Inc., Hayward, CA, *A System-Level Approach to Thermoelectric Material Property Optimization*

10:15 P. N. Egginton, P. Riis, H. Yin, TEGnology ApS, *Production prototype of a high temperature module using Zn_4Sb_3 and Mg_2SiSn_x*

10:30 J. Mackey¹, A. Sehirlioglu², F. Dynys³, ¹University of Akron, ²Case Western Reserve University, ³NASA Glenn Research Center, *Analytic couple modeling introducing the device design factor, fin factor, thermal diffusivity factor, and inductance factor*

10:45 Matthew M. Barry, Kenechi Agbim, B.V.K. Reddy, Minking K. Chyu, Mechanical Engineering and Materials Science, University of Pittsburgh, Pittsburgh, PA 15261, *Performance of a Single-Stage Integrated Thermoelectric Device Applied to Waste-Heat Recovery*

11:00 Xiangning Meng¹ and Ryosuke O. Suzuki^{1,2}, ¹Faculty of Engineering, Hokkaido University, Sapporo, Hokkaido 060-8628, Japan, ²Japan Science and Technology Agency (JST), Tokyo, Japan, *Simulation analysis for thermoelectric elements having the tilted polyhedron shape*

11:15 F.P. Brito¹, L. Figueiredo², L. Rocha², A.P. Cruz¹, L. M. Goncalves², J. Martins¹, Matthew J. Hall³, ¹Univ. of Minho, Dept. Mechanical Eng., Guimaraes, Portugal, ²Univ. of Minho, Dept. Industrial Electronics, Guimaraes, Portugal, ³Mechanical Engineering Department, University of Texas at Austin, *Analysis of the Effect of Module Thickness Reduction on Thermoelectric Generator Output*

11:30 Ryoji Funahashi^{1,4}, Yoko Matsumura¹, Ryosuke O. Suzuki^{2,4}, Shigeru Katsuyama³, Tomonari Takeuchi¹, Emmanuel Combe¹, Tristan Barbier¹, ¹National Institute of Advanced Industrial Science and Technology, ²Hokkaido University, ³Osaka University, ⁴CREST Japan Science and Technology Agency, *Development of new silicide thermoelectric modules*

11:45 Suk Lae Kim, Kyungwho Choi, Abdullah Tazebay and Choongho Yu*, Department of Mechanical Engineering, Texas A&M Univ., *Self-powered biosensors driven by flexible thermoelectric power generators*

Session C1: Monday, July 7, 2014

Chair: Thierry Caillat, NASA JPL

9:35 (Invited) E.D. Case, Michigan State University, *Environmentally assisted crack growth and thermally-driven crack healing: two important mechanisms for the mechanical properties of thermoelectric materials*

10:00 S. Firdosy, T. Caillat, B.C-Y. Li, C.K. Huang, V. Ravi, J. Paik, D. Uhl, S. Bux¹, J. Ni, K. Smith, G. Nakatsukasa and J.-P. Fleurial, Jet Propulsion Laboratory/Caltech, MS 277-207, 4800 Oak Grove Drive, Pasadena CA, 91107, *Development of High Temperature Device Technologies for the Advanced Thermoelectric Couple Project (ATEC)*

10:15 Cheng-Yun Liu¹, Xiaofeng Fan¹, Eldon D. Case¹, Hui Sun², Donald T. Morelli¹, ¹Chemical Engineering and Materials Science Department, Michigan State University, East Lansing, MI, ²Department of Physics, University of Michigan, Ann Arbor, MI, *Room temperature mechanical properties of an intermetallic thermoelectric material ZrNiS*

10:30 Robin McCarty and Robert Piper, Marlow Industries, *Voltage-Current Curves to Characterize Thermoelectric Generators*

10:45 L. Aixala¹, T. Baffie¹, G. Bernard-Granger¹, J. Dufourcq², ¹.CEA tech., ²HotBlock OnBoard, *High Performance Silicon-Germanium Based Thermoelectric Modules for Gas Exhaust Energy Scavenging*

11:00 T.J. Hendricks, NASA - Jet Propulsion Laboratory, Power and Sensors Section, Thermal Energy Conversion Group, Pasadena, CA 91109, *Perturbation Methods for Real-Time, In-Situ Evaluation of Hot-Side Thermal Resistances in Thermoelectric Energy Recovery Systems*

11:15 Russell Bennett¹, Tom Hammel¹, Thierry Caillat², Steve Keyser¹ and Bob Sievers¹, ¹Teledyne Energy Systems, Inc., Hunt Valley, MD 21031, ²Jet Propulsion Laboratory, Pasadena, CA, 91109, *Increasing the Efficiency of the Multi-Mission Radioisotope Thermoelectric Generator*

11:30 Yanliang Zhang¹, Luke Schoensee¹, Martin Cleary², Xiaowei Wang², ¹Department of mechanical and biomedical engineering, Boise State University, ²GMZ Energy, *Nanostructured High-Temperature Bulk Thermoelectric Generator for Micro Combined Heat and Power Boiler*

11:45 C. Ramesh Koripella¹, Wei-Yang Lu² and Nancy Yang², ¹Sandia National Laboratories, Albuquerque, NM 87185, ²Sandia National Laboratories, Livermore, CA 94551, *Mechanical Behavior of Polycrystalline Bismuth Telluride Thermoelectric Elements*

Session A2: Monday, July 7, 2014

Chair: Hsin Wang, Oak Ridge National Laboratory

13:15 (Invited) Zhifeng Ren, Department of Physics and TcSUH, University of Houston, Houston, TX 77204, *New thermoelectric materials for high performance*

13:40 D. Y. Nhi Truong^{1,2}, Y. Thimont³, D. Berthebaud¹, H. Kleinke², F. Gascoin¹, ¹Laboratoire CRISMAT, Caen, France, ²Department of Chemistry, University of Waterloo, Waterloo, Canada, ³Laboratoire CIRIMAT, Toulouse, France, *Preparation and thermoelectric properties of Higher Manganese Silicides by wet ball milling and spark plasma sintering*

13:55 Tsunehiro Takeuchi^{1,2,3}, Akio Yamamoto^{1,3}, Swapnil Ghodke³, and Naoya Hiroishi³, ¹Totayo Technological Institute, ²PRESTO-JST, ³Nagoya University, *Thermoelectric properties of (Mn,W)Si_y prepared by use of rapidly quenching technique*

14:10 Huili Liu^{1,2}, Xun Yuan^{1,2}, Xun Shi¹, Wenqing Zhang¹, Lidong Chen¹, ¹Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China, ²University of Chinese Academy of Sciences, Beijing 100049, China, *Ultrahigh Thermoelectric Performance by Electron and Phonon Critical Scattering in Cu₂Se_{1-x}I_x*

14:25 Marco Longhin^{1,*}; Romain Viennois¹; Didier Ravot¹; Mickael Beaudhuin¹; Jean-Jacques Robin²; Benjamin Villeroy³; Philippe Papet¹, ¹C2M et ²IAM, Inst Charles Gerhardt Montpellier, Univ Montpellier 2, UMR 5253, F-34095 Montpellier, France, ³Chimie Métallurgique des Terres Rares, ICMPE, UMR 7182, F-94320 Thiais, France, *Nanostructured CoSi obtained by SPS*

14:40 X. Chen¹, S. N. Girard², F. Meng², E. Lara-Curzio³, S. Jin², J. B. Goodenough¹, J. S. Zhou¹ and L. Shi¹, ¹Univ. of Texas at Austin, ²Univ. of Wisconsin - Madison, ³Oak Ridge National Laboratory, *Approaching the Minimum Thermal Conductivity in Re-substituted Higher Manganese Silicides*

14:55 A. Bhardwaj, D. K. Misra* and A. Dhar, CSIR-Network of Institutes for Solar Energy, Materials Physics & Engineering Division, CSIR-National Physical Laboratory, Dr. K. S. Krishnan Marg, New Delhi-110012, India, *Enhanced thermoelectric figure-of-merit in spark plasma sintered nanostructured p-type Mg₃Sb₂-based Zintl phase compounds*

Session B2: Monday, July 7, 2014

Chair: Robin McCarty, Marlow Industries

13:00 (Invited) Atsushi Yamamoto, Kazuo Nagase, Masaru Kunii, Hiroyuki Takazawa, Haruhiko Obara, Xiaokai Hu, Priyanka Jood, and Michihiro Ohta, National Institute of Advanced Industrial Science and Technology (AIST), *Rapid Prototyping Platform of Thermoelectric Module using Novel Materials*

13:25 A. Rezania, D. Sera, L.A. Rosendahl, Department of Energy Technology, Aalborg University, DK 9220 Denmark, *Hybrid Model for Photovoltaic Cell and Thermoelectric Generator*

13:40 B. A. Cook¹, T. E. Chan¹, G. Dezi¹, P. Thomas¹, C. C. Koch², J. Poon³, T. Tritt⁴, and R. Venkatasubramanian⁵, ¹RTI International, ²North Carolina State University, ³University of Virginia, ⁴Clemson University, ⁵Johns Hopkins University Applied Physics Laboratory, *High-Performance Three-Stage Cascade Thermoelectric Devices Approaching 30% Efficiency*

13:55 J. G. Stockholm¹, C. Goupil², P. Maussion³, H. Ouerdane², ¹Marvel Thermoelectrics, France. ²Université Paris Diderot, LIED, France. ³Université de Toulouse; LAPLACE, France, *Transient thermoelectric generator: an active load story*

14:10 M. Wick^{1,2}, H. Hedler¹, H. Seidel², ¹Siemens Corporate Technology, 81739 München, Germany, ²Saarland University, Chair of Micromechanics, Microfluidics/Microactuators, 66123 Saarbrücken, Germany, *Design and Analysis of Novel Micro-Machined Thermocouples with Vertical Free-Standing High Aspect Ratio Geometry*

14:25 P.Jund, P. Hermet, R.M. Ayrat, E. Theron, P.G. Yot, F. Salles, ICGM, University Montpellier 2, France, *Mechanical properties and thermal expansion of Ni-Ti-Sn Heusler and half-Heusler materials from first principles calculations and experiments*

14:40 Minseob Sim, Hyunbin Park, and Shiho Kim, School of Integrated Technology, Yonsei University, *Modeling and methodology to extract SPICE compatible parameters for thermoelectric modules*

14:55 Jaime Bohorquez-Ballen¹, Masoud Babaeian¹, Micheal B. Ontl¹, Sasi Sundaresan², Shaikh Ahmed², Thushari Jayasekera¹, ¹Department of Physics, Southern Illinois University Carbondale, ²Department of Electrical and Computer Engineering, Southern Illinois University Carbondale, *Phonon engineering of Si/Ge core-shell nanowires for thermoelectric applications: Coherent model and beyond*

Session C2: Monday, July 7, 2014

Chair: Jan Konig, Fraunhofer Institute

13:15 (Invited) C. W. Maranhville, J. G. Gebbie, and M. G. Smith, Ford Motor Company, *Development of a zonal thermoelectric auxiliary HVAC system for vehicles*

13:40 T. Caillat¹, S. Firdosy¹, B. C- Y. Li¹, C. -K. Huang¹, D. Uhl¹, K. Smith¹, J. Paik¹, J.- P. Fleurial¹, R. Bennett², and S. Keyser², ¹Jet Propulsion Laboratory/Caltech, MS 277-207, 4800 Oak Grove Drive, Pasadena CA, 91109
²Teledyne Energy Systems, Inc., 10707 Gilroy Road, Hunt Valley, MD 21301, *Skutterudite-based advanced thermoelectric couples for integration into an advanced MMRTG*

13:55 Martin Cleary¹, Yanliang Zhang², Lakshmikanth Meda³, Xiaowei Wang¹, Giri Joshi¹, Jian Yang¹, Mike Engber¹ and Yi Ma¹, ¹GMZ Energy, ²Boise State University, ³Eberspaecher North America, Inc., *Development of a 200 W Thermoelectric Generator for Exhaust Waste Heat Recovery from a Diesel Engine*

14:10 S.A. Firdosy^{*1}, B.C. Li¹, K.L. Smith¹, J.R. Chase¹, N. Keyawa¹, G. Nakatsukasa¹, J-P. Fleurial¹, M. L. Olsen², E. L. Warren, P. A. Parilla², E. S. Toberer^{2,3}, C. E. Kennedy², G. J. Snyder⁴, B. Nesmith, A. Zakutayev², A. Goodrich², C. S. Turchi², J. Netter², M. H. Gray², P. F. Ndione², R. Tirawat², L. L. Baranowski³, A. Gray², and D. S. Ginley², ¹Jet Propulsion Laboratory/California Institute of Technology Pasadena, California, USA, ²National Renewable Energy Laboratory (NREL), Golden, CO 80401, USA, ³Colorado School of Mines, Golden, CO 80401, USA, ⁴California Institute of Technology, Pasadena, CA 91125, USA, *High Temperature Segmented Thermoelectric Modules for Space and Terrestrial Power Generation*

14:25 Z.-H. Jin and T. T. Travis, Department of Mechanical Engineering, University of Maine, Orono, ME 04469, USA, *Functionally graded thermoelectric materials with arbitrary property gradations: a one-dimensional semi-analytical study*

14:40 B. Ohara, M. Wagner, P. Watson, R. Donohoe, C. Kunkle, R. Williams, M. Z. Chong, R. Wilmoth, K. Ugarte, and H. Lee, Mechanical Engineering, Santa Clara University, CA, *Residential Scale Concentrated Solar Thermoelectric System for Combined Heat and Electricity*

14:55 Yanliang Zhang, Boise State University, *A comprehensive multi-physics model on thermoelectric generators for waste heat recovery applications*

Session A3: Monday, July 7, 2014

Chair: Jihui Yang, University of Washington

15:25 (Invited) Yuri Grin, Max-Planck-Institute für Chemische Physik fester Stoffe, Nothnitzer Strasse 40, 01187, Dresden, Germany, *New Facets of Atomic Ordering and Chemical Bonding in Intermetallic Clathrates*

15:50 Qing Tan, Jing-Feng Li*, State Key Laboratory of New Ceramics and Fine Processing, Tsinghua University, School of Materials Science and Engineering, Beijing, 100084, P. R. China, *Thermoelectric properties of Cu_2SnS_3 bulks and enhanced performance by indium doping*

16:05 Ying He¹, Tristan Day², Tiansong Zhang¹, Huili Liu¹, Xun Shi^{1*}, Lidong Chen^{1*} and G. Jeffrey Snyder^{2*},
¹State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Chinese Academy of Sciences,
²Department of Materials Science, California Institute of Technology, *High thermoelectric performance in non-toxic earth-abundant copper sulfide*

16:20 Ping Wei^{1,2}, Jiong Yang¹, Jihui Yang¹, Wenyu Zhao², and Qingjie Zhang², ¹Univ. of Washington, Seattle, WA, US, ²State Key Lab. Adv. Tech. Mater. Synth. Proc., Wuhan Univ. of Technology, Wuhan, China, *Extremely Low Lattice Thermal Conductivity in Layered Compound $Bi_{14}Rh_3I_9$*

16:35 Stephen R. Boona^{1,3}, Donald T. Morelli^{1,2}, and Joseph P. Heremans^{3,4}, ¹Chem. Eng. & Mat. Sci., Michigan State Univ. ²Physics & Astronomy, Michigan State Univ., ³Mech. & Aero. Eng., The Ohio State Univ. ⁴Physics, The Ohio State Univ., *Co-evolution of electronic transport and magnetic behavior in $EuPd_3(B,Si)_x$ ($0 < x < 0.5$)*

16:50 Gloria J Lehr¹, Donald T Morelli¹, Hyungyu Jin², Joseph P. Heremans², ¹Michigan State University, ²Ohio State University, *Thermoelectric Properties of two $YbCu_2Si_2$ -Based Solid Solution Systems*

17:05 Heng Wang¹, Zachary M. Gibbs¹, Yoshiki Takagiwa², and G. Jeffrey Snyder¹, ¹Materials Science, Caltech, Pasadena, CA 91125, ²Department of Advanced Materials Science, The University of Tokyo, Chiba 277-8561, Japan, *Band Engineering of PbSe for Better Thermoelectric Performance*

17:20 Z. J. Xu, T. J. Zhu, L. P. Hu, P. J. Ying and X. B. Zhao, Zhejiang University, *High Thermoelectric Performance of BiSbTe-Based Zone-melted Alloys with Hot Deformation Process*

Session B3: Monday, July 7, 2014

Chair: Joseph Heremans, Ohio State University

15:25 (Invited) Ali Shakouri, Bjorn Vermeersch, Amr Mohammed Shahat and Yeerui, Birck Nanotechnology Center, Purdue University, *Thermal Transport in Nanoengineered Thermoelectric Materials*

15:50 E. S. Toberer¹, B. Ortiz¹, J. Yan¹, V. Stevanovic¹, S. Miller², T. Mason², ¹Physics Dept., Colorado School of Mines, ²Materials Science, Northwestern University, *Towards a high-throughput search for thermoelectric materials*

16:05 Je-Hyeong Bahk and Ali Shakouri, Birck Nanotechnology Center, Purdue University, West Lafayette, Indiana 47907, USA, *Enhanced thermoelectric figure of merit through the reduction of bipolar thermal conductivity in nanostructured materials*

16:20 F. X. Alvarez, A. Cantarero, A. F. Lopeandia, C. de Tomas, G. Garcia, P. Ferrando, D. Moller, X. Cartoixà, J. Rodriguez-Viejo, Universitat Autònoma de Barcelona. Spain, *Thermal Conductivity of Inhomogeneous Materials and Rectification Effects*

16:35 Elad Joseph and Yaron Amouyal, Department of Materials Science and Engineering, Technion - Israel Institute of Technology, *Enhancing thermoelectric performance of PbTe-based compounds by substituting elements: a first-principles study*

16:50 W.J. Xie^{1,2}, S. Populoh¹, K. Gałazka^{1,3}, X.X. Xiao², L. Sagarna¹, Y.F. Liu⁴, M. Trottmann¹, J. He⁴, A. Weidenkaff^{1,2}, ¹Empa; ²Univ. of Stuttgart; ³Univ. of Bern; ⁴Clemson Univ., *Thermoelectric study of crossroads material MnTe via sulfur doping*

17:05 Nirpendra Singh, Yasir Saeed, and Udo Schwingenschlogl, Material Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia, *Nanostructured topological insulators: Unusual thermoelectric materials*

17:20 K. Kutorasinski, B. Wiendlocha, S. Kaprzyk, J. Tobola, AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Mickiewicza 30, 30-059 Krakow, Poland, *Ambiguous role of spin-orbit interactions in thermoelectric properties of Mg₂X (X= Si, Ge, Sn) compounds*

17:35 Bahadur Singh¹, S. Auluck² and R. Prasad¹, ¹Department of Physics, Indian Institute of Technology Kanpur, Kanpur 208016, India, ²National Physical Laboratory, New Delhi 110012, India, *Topological electronic structure and thermoelectric properties of GeBi₂Te₄: an ab-initio study*

17:50 Nirpendra Singh and Udo Schwingenschlogl, Material Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Kingdom of Saudi Arabia, *Rare earth based tellurides RBiTe₃ (R=La and Gd): Unusual thermoelectric materials*

Session C3: Monday, July 7, 2014

Chair: Clay Maranville, Ford Motor Company

15:25 (Invited) Gregory P. Meisner, General Motors Research and Development, *On the Development of Low Cost Thermoelectric Generator for Automotive Waste Heat Recovery*

15:50 U. Ghoshal¹, A. Guha¹, J. Borak¹, K. Kolle¹, R. Hutton¹, H. Pokharna¹, R. Prasher², S. Ghosh², and N. Goel², ¹Sheetak Inc., Austin, USA, ²Sheetak Energy Pvt. Ltd., Gurgaon, India, *Efficient Thermoelectric Distillation Using FLO-TE Heat Pumps*

16:05 Ali Sarhadi, Rasmus Bjørk and Nini Pryds, Department of Energy Conversion and Storage, Technical University of Denmark, DK-4000 Roskilde, Denmark, *Design of thermoelectric modules for both mechanical reliability and performance using FE simulation*

16:20 Akihiro Sakai, Tsutomu Kanno, Kouhei, Takahashi, Hiromasa Tamaki, Hideo Kusada and Yuka Yamada, Advanced Technology Research Laboratories, Panasonic Corporation, Kyoto, Japan, *Development and thermoelectric properties of a tubular π -type device*

16:35 Sumeet Kumar¹, Andrei O. Dubitsky¹, Stephen D. Heister^{1,2}, Xianfan Xu¹ and James R. Salvador³, ¹School of Mechanical Engineering, Purdue Univ., West Lafayette, IN, ²School of Aeronautics and Astronautics, Purdue Univ., West Lafayette, IN, ³General Motors R&D Center, Warren, MI, *Thermoelectric Generators based on Jet Impingement Concept*

16:50 Takashi Kuroki¹, Ryota Murai¹, Kazuya Makino², Kouji Nagano², Takeshi Kajihara², Hiromasa Kaibe², Hirokuni Hachiuma² and Hidetoshi Matsuno¹, ¹JFE Steel Cororation, ²KELK Ltd., *Research and Development for Thermoelectric Generation Technology by using Waste Heat in Steelmaking Process*

17:05 F.P. Brito¹, N. Antunes², E. Haçer³, L. M. Goncalves², J. Martins¹, ¹Univ. of Minho, Mechanical Eng Dept, Guimaraes, Portugal, ²Univ. of Minho, Industrial Electronics Dept, Guimaraes, Portugal, ³Univ. of Erciyes, Kayseri, Turkey, *Thermoelectric Exhaust Heat Recovery with Heat Pipe-based Thermal Control*

17:20 Y. P. Wang¹, Z.B.Tang¹, X.Yang², Y.D.Deng¹, C.Q. Su¹, ¹Wuhan University of Technology, ²Wuhan Ordnance Noncommissioned officers School, *Optimization of the Fin Distributions to Improve the Temperature Uniformity of a Heat Exchanger in the Thermoelectric Generator*

Session A4: Tuesday, July 8, 2014

Chair: Ali Shakouri, Purdue University

8:00 (Invited) Li Shi, Department of Mechanical Engineering and Texas Materials Institute, The University of Texas at Austin, *Electronic Thermal Conductivity of $Bi_{2-x}Sb_xTe_3$ and PEDOT Thin Layers*

8:25 Shane P. Ashby; Yimin Chao, Energy Materials Laboratory, School of Chemistry, University of East Anglia, Norwich Norfolk, NR47TJ, UK, *Effects of ligand doping on the power factor of organic- semiconductor nanocomposite materials based on terthiophene capped silicon nanoparticles*

8:40 Kazuhiro Kirihara, Quingshuo Wei, Masakazu Mukaida, Yasuhisa Naitoh and Takao Ishida, National Institute of Advanced Industrial Science and Technology (AIST), *Enhancement of Thermoelectric Power Output of The Module Using Conducting Polymer PEDOT:PSS*

8:55 Hiroaki Anno, Takahiko Nishinaka, Masahiro Hokazono, Nobuaki Oshima, and Naoki Toshima, Tokyo University of Science, Yamaguchi, *Thermoelectric Power Generation Characteristics of PEDOT:PSS Film Devices with Different Thicknesses on Polyimide Substrate*

9:10 Erdong Song¹, Qiming Li², Brian Swartzentruber³, Wei Pan², George T. Wang², Julio A. Martinez^{1*}, ¹Department of Chemical Engineering, New Mexico State University, ²Sandia National Laboratories, ³Center for Integrated Nanotechnologies, Sandia National Laboratories, *Decoupled Thermoelectric Transport in Band Gap Engineered Core/Shell Nanowires*

9:25 Mukhtar A. Kareem¹, Fatemeh S. Ghareh Bagh² and Suhana M. Said¹, ¹Department of Electrical Engineering, ²Department of Chemical Engineering, University of Malaya, Kuala Lumpur, 50603, Malaysia, *Utilization of Advanced Solvents in the Enhancement of the Thermoelectric Properties of PEDOT/PSS Thin Films: Addition of Deep Eutectic Solvents*

Session B4: Tuesday, July 8, 2014

Chair: David Cahill, University of Illinois

8:00 (Invited) Xinfeng Tang¹, Xianli Su¹, Fan Fu¹, Yonggao Yan¹, and Ctirad Uher², ¹State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China, ²Department of Physics, University of Michigan, Ann Arbor, Michigan 48109, USA, *Combustion synthesis applied to compound thermoelectric semiconductors: a new criterion for applicability of combustion processing*

8:25 Beomjin Kwon, Seung-Hyub Baek, Seong Keun Kim and Jin-Sang Kim, Korea Institute of Science and Technology (KIST), Seoul, Republic of Korea, *Parasitic Thermal Effects in Harman Method for Bulk Materials*

8:40 Sebastian Seibt¹; Vincent Linseis²; Kornelius Nielsch², ¹Vielitzer Str. 43, 95100 Selb, Germany
²Institute of Applied Physics, University of Hamburg, Hamburg, Germany, *Measurement of physical properties on Nano Scaled Thin Film Thermoelectric Materials*

8:55 Yong-Hyun Kim¹, Eui-Sup Lee¹, Sanghee Cho², and Ho-Ki Lyeo², ¹Graduate School of Nanoscience and Technology, KAIST, Daejeon 305-701, Korea, ²Korea Research Institute of Standards and Science, Daejeon 305-340, Korea, *Seebeck Effect at the Atomic Scale: Principle of Scanning Seebeck Microscopy*

9:10 Z. M. Gibbs¹, H. Kim^{2,3}, M. Kaviany², G. J. Snyder¹, ¹California Institute of Technology, ²University of Michigan, ³Korea Institute of Science and Technology, *Temperature dependent optical band gap in PbX (X=Te, Se, S)*

9:25 Jack Josefowicz¹⁺, Adam Harris², and Jarett Nickerson², ¹Thermal Properties Consultant, ²C-Therm Technologies Ltd., *Non-destructive thermal conductivity characterization of thermoelectrics via the Modified Transient Plane Source Technique*

Session C4: Tuesday, July 8, 2014

Chair: Giri Joshi, GMZ Energy

8:00 (Invited) Chuanle Zhou¹, S. Birner², Yang Tang¹, Boya Cui¹, K. Heinselman¹, and **M. Grayson**¹, ¹EECS, Northwestern University, ²Technical University of Munich & nextnano GmbH, *Nanoscale and low dimensional effects*

8:25 Weishu Liu¹, Qing Jie¹, Gang Chen² and Zhifeng Ren¹, ¹Department of Physics and TcSUH, University of Houston, Houston, Texas 77204, USA, ²Department of Mechanical Engineering, MIT, Cambridge, Massachusetts 02139, USA, *Understanding of the contact of nanostructured thermoelectric n-type Bi₂Te_{2.7}Se_{0.3} legs for power generation applications*

8:40 Siyang Li, Donghua Yang, Qing Tan, Jing-Feng Li, Liangliang Li*, State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, People's Republic of China, *Evaluation of electroplated Co-P film as diffusion barrier between In-48Sn solder and SiC-dispersed Bi₂Te₃ thermoelectric material*

8:55 A. Rodríguez*, G. Pérez, D. Astrain, A. Martínez and P. Aranguren, Department of Mechanical Engineering Public University of Navarre, UPNa, Pamplona, SPAIN, *Study of the thermal contact resistance in function of surface roughness in thermoelectric generator applications*

9:10 Radoslaw Chmielowski¹, Stéphane Jacob¹, Daniel Péré¹, Gilles Dennler¹, Sebastian Zastrow², Lewis Akinsinde², Kornelius Nielsch², Chandan Bera³, Ingo Opahle³, Georg K. H. Madsen³, ¹IMRA Europe S.A.S. Sophia Antipolis, France, ²Institute of Applied Physics, University of Hamburg, Germany, ³Interdisciplinary Center for Advanced Materials Simulations, Ruhr University Bochum, Germany, *Thermoelectric properties of Bi₂S₃ doped by chloride metals*

9:25 Codrin Prahoveanu^{1,2}, Ana Lacoste¹, Cédric de Vaulx³, Kamel Azzouz³, Stéphane Béchu¹, Laetitia Laversenne², Investigation of Mg₂(Si,Sn) thin films for integrated thermoelectric devices, *Investigation of Mg₂(Si,Sn) thin films for integrated thermoelectric devices*

Session A5: Tuesday, July 8, 2014

Chair: Jeff Sharp, Marlow Industries

9:55 (Invited) T.J. Zhu and X.B. Zhao, Department of Materials Science and Engineering, Zhejiang University, China, *Point defect engineering of high performance thermoelectric materials*

10:20 Hyun-Sik Kim[†], Zachary M. Gibbs[†], Heng Wang, G. Jeffrey Snyder, California Institute of Technology, *Bipolar effects on thermoelectric properties*

10:35 Gang Zheng, Yonggao Yan, Tao Liang, Xianli Su, Xinfeng Tang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China, *Ultra-rapid synthesis and thermoelectric properties of n-type Bi₂Te_{3-x}Se_x alloys*

10:50 T.W. Lan^{1,2}, C.C. Chang², C.M. Tseng², T.K. Lee², M.K. Wu², Y.Y. Chen², ¹Department of Physics, National Taiwan University, Taipei 106, Taiwan ²Institute of Physics, Academia Sinica, Nankang, Taipei 115, Taiwan, *Thermoelectric Property Studies in Bi_{0.5}Sb_{1.5}Te₃ Composites with Silicon Inclusions*

11:05 Michihiro Ohta^{1,2}, Duck Young Chung¹, Masaru Kunii², Mercuri G. Kanatzidis^{1,3}, ¹Argonne National Laboratory, ²National Institute of Advanced Industrial Science and Technology (AIST), ³Northwestern University, Low lattice thermal conductivity in mineral-based thermoelectric materials: Homologous series Pb₅Bi₆Se₁₄, Pb₃Bi₂S₆, and PbBi₂S₄

11:20 Bhakti Jariwala¹, D. V. Shah², Vipul Kheraj² and N.M. Ravindra³, ¹Cedar Grove R&D LLC, NJ, SA, ²S.V. National Institute of Technology, Surat, India. ³New Jersey Institute of Technology, NJ, USA, *Transport Property Measurements of Doped Bi₂Te₃ Single Crystals Via Zone Melting Method*

11:35 Robin Lefevre, David Berthebaud and Franck Gascoin, Laboratoire CRISMAT CNRS ENSICAEN UCBN, *Exploratory research of new polar chalcogenides*

Session B5, Tuesday, July 8, 2014

Chair: Eldon D. Case, Michigan State University

9:55 (Invited) Joshua Martin, Winnie Wong-Ng and Martin L. Green, National Institute of Standards and Technology, *Seebeck Coefficient Metrology: Do Contemporary Protocols Measure Up?*

10:20 Jorge García-Cañadas and Gao Min, Cardiff School of Engineering, Cardiff University, Cardiff CF24 3AA, UK, *Characterization of bulk thermoelectric materials by impedance spectroscopy*

10:35 Michele D. Nielsen¹, Sunphil Kim¹, Matthias Wuttig², Felix Lange², Joseph P. Heremans^{1,3}, ¹Dept of Mechanical and Aerospace Engineering, Ohio State University, Columbus, OH, ²Physikalisches Institut (IA), RWTH Aachen University, Aachen, Germany, ³Dept of Physics, Ohio State University, Columbus, OH, *Advances in I-V-VI₂ compounds and thermoelectric property mapping*

10:50 D.Vasilevskiy^{1,2}, J.-M.Simard³, R.A.Masut¹, S.Turenne¹, ¹École Polytechnique de Montréal, Montréal, Canada, ²TEMTE Inc, Montreal, Canada, ³EXAPROM Inc, Blainville, Canada, *System for the simultaneous Harman based measurement of thermoelectric parameters from 240 K to 720 K with novel calibration procedure*

11:05 J. Mackey¹, A. Sehirlioglu², F. Dynys³, ¹University of Akron, ²Case Western Reserve University, ³NASA Glenn Research Center, *Detailed uncertainty analysis of the ZEM-3 measurement system*

11:20 Fei Ren¹, Robert D. Schmidt², Eldon D. Case², Ke An³, ¹Temple University, ²Michigan State University, ³Oak Ridge National Laboratory, *High Temperature Neutron Diffraction Study of Nanostructured Pb-Te-Sn-S Thermoelectric Materials*

11:35 W. Wong-Ng¹, Y. Yan², J. Martin¹, M. Otani¹, E.L. Thomas³, M.L. Green¹, and X.F. Tang², ¹National Institute of Standards and Technology, ²Wuhan University of Technology, ³University of Dayton Research Institute/Air Force Research Laboratory, *High Throughput Screening Tools for Thermoelectric Materials*

Session C5: Tuesday, July 8, 2014

Chair: Kunihiro Koumoto, Nagoya University

9:55 (Invited) Minoru Nohara, Okayama University, *Enhancing high-temperature power factor of PtAs₂ by chemical doping*

10:20 Naim Derebasi, Muhammed Eltez¹, Fikret Guldiken, Aziz Sever, Klaus Kallis², Halil Kilic¹, Emin N Ozmutlu, Uludag University, Department of Physics, Gorukle Bursa, Turkey, ¹GK Projects GmbH Duisburg Germany, ²TU-Dortmund, *Performance of novel thermoelectric cooling module depending on geometrical factors*

10:35 Daniel Thompson, Zuxin Ye, and Chang Liu¹, James R. Salvador², Jihui Yang³, Wei Cai, Melanie Kirkham, and Hsin Wang⁴, ¹Optimal Inc., ²Chemical and Materials Systems Lab, GM R&D Center, ³University of Washington, ⁴Materials Science and Technology Division, ORNL, *Phonon-Carrier Coupling in Au-Substituted Type I Clathrates*

10:50 Y. Ma¹, J. S. Gustavsson², Å. Haglund², M. Gustavsson¹ and S. E. Gustafsson³, ¹Hot Disk AB, Sweden, ²Photonics Laboratory, Dept. Microtechnology and Nanoscience, Chalmers Univ. of Technology, Sweden, ³Thermetrol AB, Sweden, *Pulse Transient Hot Strip Technique Adapted for Slab Sample Geometry to Study Anisotropic Thermal Transport Properties of μm -Thin Films*

11:05 B. Ohara, P. Novisoff, R. Sitar, A. Nunez Perez, and H. Lee*, Mechanical Engineering, Santa Clara University, *Optimization Strategy for Thermoelectric Cooling for Vaccine Delivery System in Developing Communities*

11:20 H. R. Zeng, K. Q. Xu, K. Y. Zhao, H. Z. Yu, G. R. Li, J. Q. Song, X. Shi, L. D. Chen, Shanghai Institute of Ceramics, Chinese Academy of Sciences 1295 Dingxi Road, Shanghai 200050, China, *Scanning thermoelectric microscopy characterization of local thermal conductivity and Seebeck coefficient of thermoelectric thin films*

Session A6: Tuesday, July 8, 2014

Chair: Matthew Grayson, Northwestern University

13:00 (Invited) Masahiro Nomura, Univ. of Tokyo, *Thermal conduction engineering by 1D phononic crystal nanostructures*

13:25 Sabah Bux, James Ma, Trinh Vo, Samantha Clarke, Chen-Kuo Huang, David Uhl, Thierry Caillat, Paul Von Allmen, Jean-Pierre Fleurial, Jet Propulsion Laboratory/California Institute of Technology, *High Efficiency Rare-Earth-Based Thermoelectric Materials for Advanced Space Power Generation*

13:40 K. Niedziolka, R. Viennois and P. Jund, ICGM, University Montpellier 2, France, *Thermoelectric properties of cubic $La_{3-y}X_4$ lanthanum chalcogenides using first-principles calculations*

13:55 Y. Hu¹, J. H. Grebenkemper¹, S. K. Bux², S. M. Kauzlarich¹, ¹Department of Chemistry, University of California; ²Jet Propulsion Laboratory, California Institute of Technology, *Tuning the Properties of the High Temperature Thermoelectric Material $Yb_{14-x}RE_xMnSb_{11}$ by Incorporation of Rare Earth Cations: $Yb_{14-x}RE_xMnSb_{11}$ (RE=Pr and Sm, x=0.2, 0.4, 0.6, 0.8)*

14:10 Ellen M. J. Hedegaard, Simon Johnsen, Lasse Bjerg, Kasper A. Borup, and Bo B. Iversen, Center for Materials Crystallography, Dept. of Chemistry, Aarhus University, Langelandsgade 140, DK-8000 Aarhus C, Denmark, *Functionally Graded GeSi Thermoelectrics by Bulk Crystal Growth*

14:25 Jason H. Grebenkemper¹, Sabah K. Bux² and Susan M. Kauzlarich¹, ¹Department of Chemistry, University of California, One Shields Avenue, Davis, CA 95616, ²Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, CA 91109, *Systematic optimization of the synthesis of the high temperature thermoelectric material $Yb_{14}MnSb_{11}$*

14:40 Shane P. Ashby, Yimin Chao, Huanpo Ning and Michael J. Reece, 1. Energy Materials Laboratory, School of Chemistry, University of East Anglia, UK, 2. Nanoforce Technology Ltd., Queen Mary, University of London UK, *Effects of particle size on the thermal diffusivity of SPS pressed silicon powders*

14:55 Gui-Ying Xu^{1*}, Xiaofeng Wu¹, Lihong Zhu², Sitong Niu¹, ¹School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, ²China Electronics Technology Group Corporation, Beijing 100846, China, *Effect of minority carrier on the thermoelectric property of $(Bi_{25}Sb_{75})_2(Te_{95}Se_5)_3$*

15:10 Hyungyu Jin¹, Bartek Wiendlocha^{1,3} and Joseph P. Heremans^{1,2}, ¹Dep. of Mechanical Engineering, ²Dep. of Physics, The Ohio State Univ., USA, ³Physics and Applied Computer Sci., AGH Univ. of Sci. and Tech., Poland, *New doping scheme in solids - study on indium doping in single crystalline bismuth*

Session B6, Tuesday, July 8, 2014

Chair: Ctirad Uher, University of Michigan

13:00 (Invited) David G. Cahill and Gyungmin Choi, Department of Materials Science and Engineering and Materials Research Laboratory, University of Illinois, Urbana, Illinois 61801, *Coupling of heat and spin currents in metallic multilayers*

13:25 Joseph P. Heremans, Hyungyu Jin, Oscar D. Restrepo, Nikolas Antolin, Roberto C. Myers and Wolfgang Windl, The Ohio State University, Columbus, Ohio, USA, *Phonon Diamagnetism*

13:40 Felix Fahrnbauer¹, Stefan Schwarzmüller², Philipp Urban¹, Nadja Giesbrecht², Christina Fraunhofer², Gerald Wagner¹, G. Jeffrey Snyder³ and Oliver Oeckler¹, ¹Leipzig University, GERMANY, ²LMU Munich, GERMANY, ³California Institute of Technology, UNITED STATES, *Precipitates in Ge-Sb-Te and Sn-Bi-Se materials as nanostructured thermoelectrics*

13:55 Anthony V Powell¹, Jack Corps² and Paz Vaquero¹, ¹Department of Chemistry, University of Reading, Whiteknights, Reading RG6 6AD, UK, ²Institute of Chemical Sciences, Heriot-Watt University, Edinburgh, *Optimising the thermoelectric properties of shandite-type phases through chemical substitution*

14:10 C. He¹, M. Uenuma¹, Y. Shinoda², N. Okamoto¹, R. Honda¹, H. Kamitake¹, I. Yamashita¹ and Y. Uraoka¹, ¹Graduate School of Material Science, Nara Institute of Science and Technology, ²Research and Development Division, Toyoda Gosei Co., Ltd, *Improved Thermoelectric Properties by Control of Nanoparticles in Thin Film*

14:25 Y. Wang, L.X. Liang, H.L. Gao, S.M.Zhang and Y. Deng, Ministry of Education Key Laboratory of Aerospace Advanced Materials and Performance, School of Material Science and Engineering, Beihang University, Beijing 100191, China, *Core-shell heterostructured Bi₂Te₃@Sb₂Te₃ hexagonal nanoplates built bulk and thin film materials*

14:40 Yuji Ohishi¹, Yoshinobu Miyazaki¹, Hiroaki Muta¹, Ken Kurosaki¹, Shinsuke Yamanaka^{1,2}, Noriyuki Uchida³ and Tetsuya, ¹Osaka University, ²University of Fukui, ³National Institute of Advanced Industrial Science and Technology, *Charge transport properties of nanocrystalline silicon and silicide composite films*

14:55 Amirkoushyar Ziabari¹, Je-Hyeong Bahk¹, Hong Lu³, Zhixi Bian², Art Gossard³, and Ali Shakouri^{1,2}, ¹Birck Nanotechnology Center, Purdue University, ²University of California Santa Cruz, ³University of California Santa Barbara, *Observation of Nonlinear Peltier Coefficient in Low doped n-type InGaAs at Cryogenic Temperatures*

15:10 Neophytos Neophytou^{1,2} and Hans Kosina², ¹School of Engineering, University of Warwick, Coventry, CV4 7AL, UK, ²Institute for Microelectronics, TU Wien, Gußhausstraße 27-29/E360, A-1040 Wien, Austria, *Field Effect Density Modulation in Nanowires for Large Thermoelectric Power Factors: A Self-Consistent Atomistic Simulation Approach*

Session C6: Tuesday, July 8, 2014

Chair: Minoru Nohara, Okayama University

13:00 (Invited) Aljoscha Roch, Fraunhofer Institute, Dresden, Germany, *Polymer Thermoelectric: From Material to the Device*

13:25 Corson Cramer, John D. Williams, Casey Farnell, Cody Farnell, Colorado State University, *Thermoelectric Properties and Film Morphology of Si/SiC Thin-Film Superlattices*

13:40 S. L. Benjamin, C. H. (Kees) de Groot, C. Gurnani, A. L. Hector, R. Huang, E. Koukharenko, W. Levason, G. Reid, ¹Chemistry, University of Southampton, Southampton, SO17 1BJ, UK, ²Electronics and Computer Science, University of Southampton, Southampton, SO17 1BJ, UK, *Selective Chemical Vapour Deposition of Nanostructured Bismuth and Antimony Chalcogenides from Single Source Precursors*

13:55 DukSoo Kim¹, Renzhong Du², Shih-Ying Yu³, Qi Li², Suzanne Mohny³, Srinivas Tadigadapa¹, ¹Department of Electrical Engineering, ²Department of Physics, ³Department of Material Science and Engineering, The Pennsylvania State University, University Park, USA, *Investigation of Bismuth Telluride Nanotube Thermoelectrics*

14:10 Erdman M.¹, Martin K.¹, Quintana H.², Shelnutt J.³, Lavrova O.¹, Busani T.¹, Martinez J.², ¹Center for High Technology Materials, Univ. of New Mexico, NM 87106, ²Dep. of Chem. Eng., New Mexico State Univ., NM 88003, ³Dep. of Chemistry, Univ. of Georgia, GA 30602, *Photo-Enhanced Thermoelectric Power in Hybrid Materials for Ultra-Wide Solar Power Cells*

14:25 Chunlei Wan, Tomohiro Ito, Mami Kondou, Yumi Kodama, Kunihito Koumoto, Nagoya University, Graduate School of Engineering, Nagoya, Japan, *Versatile TiS₂-based inorganic/organic superlattices for thermoelectrics*

14:40 N. Uchida¹, Y. Ohishi², Y. Miyazaki², K. Kurosaki², S. Yamanaka², T. Tada¹, ¹NERI-AIST, ²Osaka Univ., *Improvement of thermoelectric properties of Si and Ni silicide nanocomposite films by SiGe alloying*

14:55 Seong Gi Jeon¹, Jin Yu¹, Dong Woo Park², Sang Jun Lee², and Jae Yong Song^{2*}, ¹Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon Korea, ²Korea Research Institute Standards and Science, Daejeon Korea, *Measurements of Thermoelectric Properties of InAs Nanowires*

15:10 M. Winkler¹, A.L. Hansen², T. Dankwort³, J. D. Koenig¹, H. Böttner¹, K. Bartholomé¹, W. Bensch², L. Kienle³, ¹Fraunhofer IPM, Freiburg, ²Institute of Inorganic Chemistry, University Kiel, ³Institute for Materials Science, Synthesis and Real Structure, University Kiel, *Stability, structure and properties of Sb₂Te₃-Bi₂Te₃ superlattices grown by Molecular Beam Epitaxy and the Nanoalloying method*

Session A7: Wednesday, July 9, 2014

Chair: Peter Rogl, University of Vienna

8:25 E.D. Specht¹, J. Ma¹, O. Delaire¹, J.D. Budai¹, A.F. May¹, E.A. Karapetrova², ¹Oak Ridge National Laboratory, ²Argonne National Laboratory, *Structural Contributions to Thermal Conductivity in AgSbTe₂*

8:40 X. Song¹, K. Valsert¹, O.B. Karlsen¹, J.S. Graff², A. Thøgersen^{1,2}, S. Luxsacumar², O.M. Løvvik^{1,2}, T. Finstad¹, ¹Department of Physics, University of Oslo, Norway, ²Materials and Chemistry, SINTEF, Norway, *Nanostructuring by cryomilling of undoped ZnSb*

8:55 R. Pothin, R.M. Ayrat, F. Rouessac, P. Jund, ICGM, University Montpellier 2, France, *Synthesis and thermoelectric properties of ZnSb*

9:10 Umut Aydemir¹, Alex Zevalkink Williams², Sabah Bux², G. Jeffrey Snyder¹, ¹Faculty of Materials Science, California Institute of Technology, ²NASA, Jet Propulsion Laboratory, *Thermoelectric Properties of the Zintl Phases in the Systems Ba-Zn-Sn and Ba-Ga-Sb*

9:25 D. Wu¹, L. Zhao², S. Hao², H. Chi³, C. Uher³, C. Wolverton², M. Kanatzidis² and J.Q. He¹, ¹SUSTC, China; ²Northwestern Univ., USA; ³Univ. of Michigan, USA, *Origin of the high performance in GeTe Based Thermoelectric materials*

Session B7, Wednesday, July 9, 2014

Chair: Gerda Rogl, University of Vienna

8:00 (Invited) George S. Nolas, Department of Physics, University of South Florida, Tampa, FL, USA, *Bulk Thermoelectric Materials Research: a Synergistic Experimental, Computational, and Device Development Approach*

8:25 Benjamin Balke, Institute of Inorganic and Analytical Chemistry, Johannes Gutenberg-University, Mainz, Germany, *Design of thermoelectric highly efficient Heusler compounds using phase separation and nano-composites*

8:40 Yuanfeng Liu¹, Alexander Page², Pranati Sahoo¹, Hang Chi², Ctirad Uher² and Pierre F. P. Poudeu^{1,*},
¹Laboratory for Emerging Energy and Electronic Materials, Department of Materials Science and Engineering, University of Michigan, Ann Arbor, 48109, USA, ²Department of Physics, University of Michigan, Ann Arbor, MI, 48109, USA, *Electronic and Phonon Transports in Sb-doped $Ti_{0.1}Zr_{0.9}Ni_{1+x}Sn_{0.975}Sb_{0.025}$ Nanocomposites*

8:55 Giri Joshi¹, Ran He², Mike Engber¹, Ekraj Dahal¹, Jian Yang¹, Boris Kozinsky³, Xiaowei Wang¹, Martin Cleary¹, and Zhifeng Ren², ¹GMZ Energy Inc., ²University of Houston, Department of Physics, ³BOSCH Corporation, *Low cost half-Heusler materials for power generation applications*

9:10 Hanhui Xie,¹ Heng Wang,² Chenguang Fu,¹ Yintu Liu,¹ G. Jeffrey Snyder,^{*2} Xinbing Zhao¹ and Tiejun Zhu^{*1},
¹State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University, China, ²Materials Science, California Institute of Technology, USA, *The intrinsic disorder related alloy scattering in unsubstituted ZrNiSn half-Heusler thermoelectric materials*

9:25 Yang Zhou¹, Qing Tan¹, Jie Zhu², Jing-Feng Li¹, Liangliang Li^{1,*}, ¹State Key Laboratory of New Ceramics and Fine Processing, School of MSE, Tsinghua Univ., Beijing 100084, China, ²Institute of Engineering Thermophysics, CAS, Beijing 100190, China, *Thermoelectric properties of amorphous Zr-Ni-Sn thin films deposited by magnetron sputtering*

Session C7: Wednesday, July 9, 2014

Chair: Olivier Delaire, Oak Ridge National Laboratory

8:15 (Invited) David Broido¹ and Olle Hellman², ¹Boston College, ²Linköping University, *Phonon Thermal Transport in Bi₂Te₃ from first principles*

8:40 M. Ohtaki and K. Mizuta, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Fukuoka, Japan, *Enhanced Phonon Scattering in Oxides with "Rattling" atoms in Oversized Cage Structure*

8:55 L. Lindsay¹, D. A. Broido², N. Katcho³ and N. Mingo³, ¹NRC Research Associate at Naval Research Laboratory, Washington, D.C., ²Department of Physics, Boston College, Chestnut Hill, MA, ³LITEN, CEA-Grenoble, Grenoble, France, *Phonon scattering from point defects and lattice thermal transport in lead chalcogenides and other thermoelectric materials*

9:10 Jiong Yang¹, Ping Wei¹, Jihui Yang¹, and Wenqing Zhang², ¹University of Washington, Seattle, WA 98195-2120, USA, ²Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China, *Lattice Thermal Conductivity for Bulk Materials from Ab Initio Phonon Calculations and the Modified Callaway Model*

9:25 K. Tyagi, B. Gahtori, B. Sivaiah, A. K. Srivastava and A. Dhar, CSIR- National Physical Laboratory, Dr. K. S. Krishnan Marg, New Delhi-110012, *Nanostructured copper deficient Cu₂Se as a potential thermoelectric material*

Session A8: Wednesday, July 9, 2014

Chair: Lucas Lindsay, Oak Ridge National Laboratory

9:55 (Invited) Jihui Yang, Materials Science and Engineering Department, University of Washington, Seattle, WA 98195-2120, USA, *Lattice Heat Trapped by Localized Weak Chemical Bonds*

10:20 Matthias Möller and Barbara Albert, Technische Universität Darmstadt, *Systematic study on thermoelectric properties of 1-2-2 Zintl compounds*

10:35 Alex Zevalkin¹, Ethan Cheng¹, Gregory Pomrehn², Wolfgang Zeier², Jeffrey Snyder², Sabah Bux¹, Jean-Pierre Fleurial¹, ¹Thermal Energy Conversion Technologies Group, Jet Propulsion Laboratory, Pasadena, CA 91109, ²Department of Material Science, California Institute of Technology, Pasadena, CA 91125, *Defect-controlled electronic properties in AZn₂Sb₂ Zintl phases (A = Sr, Ca, Yb, Eu)*

10:50 Shanyu Wang, Jiong Yang, Lihua Wu, Ping Wei, Jihui Yang, Materials Science and Engineering Department, University of Washington, Seattle, WA 98195-2120, USA, *High thermoelectric performances of Ag-doped CdSb with intrinsic glasslike thermal conduction*

11:05 Dingguo TANG^{1,2}, Wenyu ZHAO¹, Jian YU¹, Ping WEI¹, Hongyu ZHOU¹, Wanting ZHU¹ and Qingjie ZHANG¹, ¹Wuhan University of Technology, Wuhan 430070, China. ²South-Central University for Nationalities, Wuhan 430074, China, *Preparation and Properties of Zn₄Sb₃In₆ Thermoelectric Compounds*

Session B8: Wednesday, July 9, 2014

Chair: Elliot Specht, ORNL

9:55 (Invited) O. Delaire, J. Ma, C.W. Li, A.F. May, E. Specht, J. Budai, D.J. Singh and B.C. Sales, Oak Ridge National Laboratory, *Phonon Scattering Mechanisms in Thermoelectrics*

10:20 Jan Beck(1), Lázaro Calderín(2), Manuel Alvarado(1), David Nemir(1) and Philippe Jund(3), (1)TXL Group, Inc., El Paso, Texas, USA, (2)Materials Research Institute, The Pennsylvania State University, University Park, Pennsylvania, USA, (3)Institut Charles Gerhardt Montpellier, Montpellier, France, *Towards a Kubo-Greenwood Based Thermoelectric Property Calculator For Quantum Espresso*

10:35 Isao Ohkubo* and Takao Mori, WPI Research Center, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan, *Thermoelectric transport and electronic structure of a two-dimensional layered complex nitride SrTiN₂*

10:50 Lihua Wu^{1,2,3}, Jiong Yang¹, Jihui Yang¹, Wenqing Zhang² and Lidong Chen², ¹Univ. of Washington, Seattle, WA, USA, ²Shanghai Inst. of Ceramics, Chinese Acad. of Sci., Shanghai, China, ³Univ. of Chinese Acad. of Sci., Beijing, China, *Enhanced Thermopower in Bulk Materials with the Rashba Effect*

11:05 Jesse Maassen and Mark Lundstrom, Purdue University, *Describing Ballistic and Quasi-Ballistic Phonon Transport with Diffusion Equations*

11:20 Payam Norouzzadeh and Daryoosh Vashaee, Oklahoma State University, *Prediction of Thermal Conductivity of Amorphous Silicon Germanium versus Composition and Temperature by Molecular Dynamics*

Session C8: Wednesday, July 9, 2014

Chair: Ryoji Funahashi, AIST, Osaka, Japan

9:55 (Invited) A. Maignan*, E. Guilmeau, D. Berthebaud, F. Gascoin, R. Daou and S. Hébert, Laboratoire CRISMAT, UMR 6508 CNRS ENSICAEN - 6 Bd du Maréchal Juin - 14050 CAEN FRANCE, *Oxides and sulfides: is there an impact of magnetism on the thermoelectric properties?*

10:20 Arash Mehdizadeh Dehkordi¹, Sriparna Bhattacharya², Husam N. Alshareef³ and Terry M. Tritt^{1,2}, ¹ Dept. of Mater. Sci. and Eng., Clemson University, ² Dept. of Phys. and Astronomy, Clemson University, ³ Materials Science and Engineering, King Abdullah University of Science and Technology (KAUST), *Manipulating Thermal Conduction in Bulk Polycrystalline SrTiO_{3-δ} Ceramics via Nonstoichiometry Tuning*

10:35 S. Bernik¹, M. Košir¹, M. Čeh¹, E. Guilmeau², ¹Jožev Stefan Institute, ²Laboratoire CRISMAT, CNRS/ENSICAEN, *Microstructural and Thermoelectric Characteristics of the (ZnO)_k In₂O₃ Ceramics*

10:50 F. Azough, D. Srivastava, R. Freer¹, D. Kepaptsoglou, Q. M. Ramasse Q², ¹University of Manchester, U.K., ²SuperSTEM laboratory, U.K., *High Temperature Thermoelectric Properties of (La - Nb) substituted SrTiO₃ ceramic Enhanced by Boron Addition*

11:05 C. Schneider¹, P. Schichtel¹, B. Mogwitz¹, M. Rohnke¹, J. Janek¹, R. Straubinger², A. Beyer², ¹Institute of Physical Chemistry, Justus-Liebig-University Giessen, ²Faculty of Physics and Materials Science Center, Philipps-University Marburg, *Study of thermally induced degradation effects on thermoelectric materials*

Session A9, Wednesday, July 9, 2014

Chair: Xun Shi, Shanghai Institute of Ceramics

13:00 (Invited) E. Bauer^{1,4}, P. Pezeshkpour¹, P. Heinrich¹, G. Rogl^{2,4}, A. Grytsiv^{1,4}, X.Q. Chen², R. Podloucky², M. Hohenhofer³, F. Spenger³, P. Rogl^{2,4}, ¹IFP, TU Vienna, ²IPC, Univ. Vienna, ³Treibacher Industrie AG, ⁴Christian Doppler L. for Thermoelectricity, *High performance skutterudites: from bandstructure calculations towards industrial production*

13:25 G. Nie, A. Sumiyoshi, T. Tomida, T. Ochi, S. Suzuki, M. Kikuki, J.Q. Guo, Furukawa Co., Ltd., *Thermoelectric properties of p-type skutterudite (Pr, Ba, Ga, Ti)_x(Fe, Co)₄Sb₁₂ materials*

13:40 J. Mackey¹, A. Sehirlioglu², F. Dynys³, ¹University of Akron, ²Case Western Reserve University, ³NASA Glenn Research Center, *Co_xNi_{4-x}Sb_{12-y}Sn_y Ternary Skutterudites: Processing and Thermoelectric Properties*

13:55 Tao Liang¹, Xianli Su¹, Yonggao Yan¹, Gang Zheng¹, Qiang Zhang¹, Hang Chi², Xinfeng Tang^{1,a}, and Ctirad Uher², ¹State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 43007, China, ²Department of Physics, University of Michigan, Ann Arbor, Michigan, *Ultra-fast synthesis and thermoelectric properties of Te doped skutterudites*

14:10 Michael J. Adams¹, Michele D. Nielsen¹, and Joseph P. Heremans^{1,2}, ¹Department of Mechanical Engineering, The Ohio State University, Columbus, OH, ²Department of Physics, The Ohio State University, Columbus, OH, *Improving electronic properties of Al doped (p-type) CoSb₃*

14:25 Seongho Choi¹, Ken Kurosaki¹, Guanghe Li¹, Yuji Ohishi¹, Hiroaki Muta¹, and Shinsuke Yamanaka^{1,2}, ¹Graduate School of Engineering, Osaka University, Suita, Japan, ²Research Institute of Nuclear Engineering, University of Fukui, Tsuruga, Japan, *Thermoelectric properties of TI-filled p-type skutterudites: Tl_xFe_{1.5}Co_{2.5}Sb₁₂*

14:40 G. Rogl, A. Grytsiv, E. Bauer, P. Rogl, Inst. of Phys. Chemistry, Univ. Vienna and Inst. of Solid State Physics, Vienna Univ. of Technology, Christian Doppler Laboratory for Thermoelectrics, Austria, *Ways to further enhance ZT of p-type skutterudites (approaching ZT = 1.5)*

14:55 Bed Poudel¹, John W. McCoy², Susanthri Perera¹, Adam Peng¹, Luke Nally¹, Al Waring¹, Frederick A. Leavitt², Clint Ballinger¹, ¹Evident Technologies, ²Hi-Z Technology, *Reliability Study of Skutterudite Based Modules for Power Generation Application*

15:10 S. Hui¹, J. R. Salvador², K. P. Pipe¹, and C. Uher¹, ¹Univ. of Michigan, ²GM R&D Center, *Effect of Sn dopants on the thermoelectric properties of p-type Fe-doped Yb-filled skutterudites*

15:25 Yinglu Tang¹, Sinn-wen Chen², G. Jeffrey Snyder¹, ¹California Institute of Technology, Pasadena, California 91125, USA; ²National Tsing Hua University, #101, Sec.2, Kuang-Fu Rd., Hsin-Chu 300, Taiwan, *Approaching the optimum carrier concentration for thermoelectric performance of Yb-doped CoSb₃ based skutterudites by phase diagram study*

Session B9: Wednesday, July 9, 2014

Chair: George Nolas, University of South Florida

- 13:00 (Invited) Yaniv Gelbstein, Ben Gurion University. Beer-Sheva, Israel, *Thermoelectric Efficiency Enhancement in GeTe/PbTe Based Materials*
- 13:25 Xin Chen, **David Parker**, and David J. Singh, Oak Ridge National Laboratory, *Importance of non-parabolic band effects in the thermoelectric properties of semiconductors*
- 13:40 B. Ortiz, E. Toberer, V. Stevanovic, J. Yan, S. Lany, H. Peng, P. Parilla, A. Zakutayev, Colorado School of Mines, National Renewable Energy Laboratory, *Next-generation rock-salt thermoelectric materials*
- 13:55 Yaron Amouyal, Department of Materials Science and Engineering, Technion - Israel Institute of Technology 32000 Haifa, Israel, *Reducing lattice thermal conductivity of AgSbTe₂-based compounds by lanthanum substitution: computational and experimental approaches*
- 14:10 M. W. Oh, J. H. Park, B. Ryu, J. E. Lee, S. J. Joo, B. S. Kim, B. K. Min, H. W. Lee, and S. D. Park, Korea Electrotechnology Research Institute, *Nano-structuring and carrier concentration optimization for n-type PbTe compounds*
- 14:25 Chenguang Fu, Tiejun Zhu, and Xinbing Zhao, State Key Laboratory of Silicon Materials, Department of Materials Science and Engineering, Zhejiang University, Hangzhou 310027, P. R. China, *High thermoelectric efficiency of p-type FeVSb based half-Heusler alloys*
- 14:40 C.W. Li, ¹MSTD, Oak Ridge National Laboratory, ²Linkoping University, ³QCMD, Oak Ridge National Laboratory, *Phonon self-energy and origin of anomalous neutron scattering spectra in SnTe and PbTe thermoelectrics*
- 14:55 G. Tan, ¹L.-D. Zhao, ¹F. Shi, ¹J.W. Doak, ¹S.-H. Lo, ¹H. Sun, ²C. Wolverton, ¹V. P. Dravid, ¹C. Uher, ²and M. G. Kanatzidis^{1,3,*}, ¹Northwestern University, USA; ²University of Michigan, USA; ³Argonne National Laboratory, USA, *High thermoelectric performance in p-type SnTe via a synergistic band engineering and nanostructuring approach*
- 15:10 Rajeshkumar Mohanraman^{1*} and Yang-Yuan Chen¹, ¹Institute of Physics, Academia Sinica, Taiwan, ROC, *Influence of In doping on the thermoelectric properties of AgSbTe₂ compound with enhanced figure of merit*
- 15:25 Chao-Feng Wu, Jing-Feng Li, State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing, 100084, China, *Enhanced thermoelectric performance in PbSe-SnSe solid solutions by band modification*

Session C9: Wednesday, July 9, 2014

Chair, Lidong Chen, Shanghai Institute of Ceramics

13:15 (Invited) G. Jeffrey Snyder, California Institute of Technology, *The potential of Copper and Silver Chalcogenides for thermoelectric applications*

13:40 Sedat Ballikaya,^{1,2} James R. Salvador,³ Ctirad Uher,^{2*}, ¹Univ. of Istanbul, ²Univ of Michigan, ³Chem.&Mater. Sys. Lab. GM R&D Center, *Stoichiometric and over stoichiometric Ag doping effect on Thermoelectric Properties of Cu₂Se*

13:55 Bouyrie Yohan, Candolfi Christophe, Masschelein Philippe, Ohorodniichuk Viktoriia, Kutorasinski Kamil, Tobola Janusz, Dauscher Anne, Lenoir Bertrand, Institut Jean Lamour, UMR 7198 CNRS-Université de Lorraine, Parc de Saurupt, CS 50840, F-54011 Nancy, France, Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, 30-059 Krakow, Poland, *High temperature thermoelectric properties of Tetrahedrites with tellurium Cu₁₂Sb_{4-x}TexS₁₃*

14:10 Leena Joshi^{*1}, Kalpna Rajput² and Satish Vitta², ¹Dept. of Physics, St. Xavier's College Autonomous, Mumbai-01, ²Dept. of Metallurgical Engg. and Materials Sc., Indian Institute of Technology Bombay, Mumbai-76, *High Temperature Thermoelectric Properties of Superionic Conducting Binary Chalcogenides Cu₂Se, Ag₂Se and their ternary alloys Cu-Ag-Se*

14:25 Y. G. Yan¹, F. Fu^{1†}, X. L. Su^{1†}, X. F. Tang^{1*}, Q. J. Zhang¹, C. Uher², ¹State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China ² Department of Physics, University of Michigan, Ann Arbor, *Stable, nanostructured Cu₂Se with superior thermoelectric performance prepared by an ultra-fast self-propagating high temperature synthesis*

14:40 (Invited) S.A. Danilkin¹, ¹Bragg Institute, ANSTO, Lucas Heights, NSW, Australia, *Phonon Damping in Thermoelectric Cu_{2-x}Se Compounds and, Soft Phonons in Sr₂Fe₂O₅ and Ca₂Fe₂O₅ Brownmillerites*

15:05 * L.M. Lyu¹, L.C. Chen² and K.H. Chen¹, ¹Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, TAIWAN, ²Center for Condensed Matter Sciences, National Taiwan University, Taipei, TAIWAN, *Effect of Copper Sulfide Composition on its Thermoelectric Performance*

15:20 Xiaoya Shi¹, Binghui Ge^{1,2}, Yimei Zhu¹, Qiang Li¹, ¹Brookhaven National Laboratory, ²Institute of Physics, Chinese Academy of Sciences, *Significantly Improved Thermoelectric Property in SnTe Through Indium Doping*

Session A10: Thursday, July 10, 2014

Chair: Antoine Maignan, CRISMAT, Caen

8:15 (Invited) Donald T Morelli¹, Xu Lu¹, Vidvuds Ozolins², Yi Xia², Ctirad Uher³, Hang Chi³, and Edgar Lara-Curzio⁴, ¹Michigan State University; ²University of California-Los Angeles; ³University of Michigan; ⁴Oak Ridge National Laboratory, *High Performance, Low Cost Thermoelectrics Based on Natural Mineral Tetrahedrite*

8:40 Bin He¹, Bartek Wiendlocha^{1,2} and Joseph P. Heremans^{1,3}, ¹Department of Mechanical and Aerospace Engineering, the Ohio State University, Columbus, Ohio, ²AGH University of Science and Technology, 30-059 Krakow, Poland, ³Department of Physics, the Ohio State University, Columbus, Ohio, *Thermoelectric Property of Tin Selenide Prepared by Spark Plasma Sintering and Iodine as a Potential N-type Dopant in SnSe*

8:55 Lijun Wu, Yimei Zhu, and Qiang Li, Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, New York, 11973, *Direct Measurement of Thermal Displacement of Atoms in Thermoelectric Materials and its Nature in Phonon Scattering*

9:10 J. Tervo, A. Yamamoto¹, H. Heinonen, U. Kanerva, VTT Technical Research Centre of Finland, ¹National Institute of Advanced Industrial Science and Technology (AIST, Japan), *Improvement of thermoelectric properties of Co349 by nano-Ag doping*

9:25 D.J. Voneshen 1, K. Refson 2, E. Borissenko 3, M. Krisch 3, A. Bosak 3, A. Piovano 4, E. Cemal 1,4, M. Enderle 4, M.J. Gutmann 5, M. Hoesch 6, M. Roger 7, L. Gannon 8, A.T. Boothroyd 8, S. Uthayakumar 1, D.G. Porter 1 and J.P. Goff 1, [1] Royal Holloway, University of London, [2] STFC, Rutherford Appleton Laboratory, [3] European Synchrotron Radiation Facility, [4] Institut Laue-Langevin, [5] ISIS Facility, [6] Diamond Light Source, [7] CEA Saclay, [8] Oxford University, *Suppression of thermal conductivity by rattling modes in thermoelectric sodium cobaltate*

Session B10: Thursday, July 10, 2014

Chair: Gang Chen, Massachusetts Institute of Technology

8:00 (Invited) R. P. Hermann, JCNS, Forschungszentrum Juelich, Germany and Faculty of Science, Univ Liege, Belgium, *Lattice dynamics in iron antimonides*

8:25 Z. Aksamija, University of Massachusetts-Amherst, *Phonon Transport in SiGe-based Nanocomposites and Nanowires for Thermoelectric Applications*

8:40 Bivas Saha¹, Yee Rui Koh¹, Joseph P. Feser², Sridhar Sadasivam¹, Timothy Fisher¹, Ali Shakouri¹ and Timothy D. Sands¹, ¹Birck Nanotechnology Center, Purdue University, West Lafayette, IN-47906, USA, ²Department of Mechanical Engineering, University of Delaware, Newark, DE 19716, USA, *Effect of Period Thickness on the Cross-plane Thermal Transport of (Ti,W)N/(Al,Sc)N Metal/Dielectric Superlattices*

8:55 Hang Zhang and Austin J. Minnich, Division of Engineering and Applied Science, California Institute of Technology, Pasadena, CA 91125, *The best nanoparticle size distribution for minimum thermal conductivity*

9:10 Mikio Koyano^{1,2)} Hayato Kamei¹⁾ and Shunsuke Nishino¹⁾, 1) School of Materials Science, Japan Advanced Institute of Science and Technology, 2) Green Devices Research Center, Japan Advanced Institute of Science and Technology, *Thermal conductivity in quasi-one-dimensional transition-metal trichalcogenides*

9:25 Sasi Sundaresan¹, Abu Sadeque¹, Thushari Jayasekera², and Shaikh Ahmed¹, ¹Department of Electrical and Computer Engineering, ²Department of Physics, Southern Illinois University at Carbondale, IL 62901, USA, *Full-band phonon transport in nanostructures: A coupled molecular mechanics-Monte Carlo (MM-MC) approach*

Session C10: Thursday, July 10, 2014

Chair: David Parker, Oak Ridge National Laboratory

8:00 (Invited) Peter Rogl, Institute of Physical Chemistry, University of Vienna, Währingerstr. 42, A-1090 Wien, Austria, *Thermoelectric Clathrates (Type I) with Strontium and Barium*

8:25 Marion C. Schäfer, Svilen Bobev, University of Delaware, Newark, DE, 19716, *Synthesis and structural characterization of type-I and type-II clathrates of tin*

8:40 Y. X. Chen¹, K. Niitani¹, J. Izumi¹, K. Suekuni¹ and T. Takabatake^{1,2}, ¹Department of Quantum Matter, ADSM, Hiroshima University, Japan, ² Institute for Advanced Materials Research, Hiroshima University, Japan, *Crystal growth of thermoelectric type-VIII clathrate Ba₈Ga₁₆Sn₃₀ by the vertical Bridgman method*

8:55 A. Prokofiev, A. Sidorenko, K. Hradil, M. Ikeda, S. Paschen, Vienna University of Technology, A-1040 Vienna Austria, *Clathrates with rare earth elements encapsulated in clathrate cages*

9:10 L. Marquez-Garcia¹, Wei Li^{1,2}, J. J. Bompfrey¹, D J Jarvis³ and Gao Min¹, ¹School of Engineering, Cardiff University, Cardiff, CF24 3AA UK, ²Hubei University of Automotive Technology, Shiyan City, Hubei, China, ³European Space Agency, ESTEC, PO Box 299, 2200 AG Noordwijk, Netherlands, *Preparation of thermoelectric nanoparticles using ultrasonic milling*

9:25 Dale Hitchcock¹, Terry M. Tritt^{1,2}, and Jian He¹, ¹Department of Physics and Astronomy Clemson University, Clemson, SC, ²Department of Materials Science Clemson University, Clemson, SC, *Unusual Lattice Dynamics and Exceptionally Low Thermal Conductivity in the Argyrodite Ag₈GeTe₆*

POSTER SESSIONS I and II: Tuesday, July 8 and Wednesday, July 9, 2014

Note that all posters are presented at both poster sessions. Poster presenters are welcome to leave their posters hanging between them. Please hang posters on the board corresponding to the poster numbers below.

Poster size is a maximum of 4'x4' (120 cm x 120 cm).

- 1 Rasit Ahiska¹, Lyubomyr Nykyruy², Dmytro Freik², Lyubov Mezhylovska², Ihor Horichok², Yuri Khalavka³, and Kenan Ahiska⁴, ¹Gazi University, Turkey; ²Vasyl Stefanyk Precarpathian National University, Ukraine; ³YuriFedjkovych Chernivtsy National University, Ukraine; ⁴Middle East Technical University, Turkey, *Thermoelectric Composites on the Base of PbTe with Nanoiclusions of Colloidal Ag*
- 2 Abdulmohsen Alothman and Muhammad Hajj, Department of Engineering Science and Sechanics, Virginia Tech, *Experimental and Modeling Analysis of Thermoelectric Generator*
- 3 Mirko Klein Altstedde M.Eng., Dipl.-Phys. Reinhard Sottong, Dipl.-Ing. Oliver Freitag, Dipl.-Ing. Martin Kober, Dipl.-Ing. Volker Dreißigacker, Dr.rer.nat. Knud Zabrocki, Dipl.-Ing. Patric Szabo, German Aerospace Center (DLR), *Development of a Thermoelectric Module Suitable for Vehicles that is Based on CoSb₃ Manufactured Close to Production*
- 4 Sima Aminorroaya¹, Heng wang², Zachary Gibbs², Yanzhong Pei², David Mitchell¹, Shi Xue Dou¹, G Jeffrey Snyder², 1) Australian Institute for Innovative Materials (AIIM), Innovation Campus, University of Wollongong, NSW 2519, Australia, 2) Materials Science, California Institute of Technology, Pasadena, CA 91125, USA, *Thermoelectric performance of quaternary (PbTe)_(1-x-y)(PbSe)_x(PbS)_y compounds*
- 5 Tae-Ho An^{1,2}, Young Soo Lim¹, Won-Seon Seo¹, Cheol-Hee Park³ and Chan Park², ¹Korea Institute of Ceramic Engineering and Technology (KICET), Republic of Korea, ²Seoul National University, Republic of Korea, ³LG Chem/Research Park, Republic of Korea, *Effects of Bi Vacancy on Thermoelectric Properties in Bi_{1-x}CuOSe*
- 6 Hiroaki Anno and Ritsuko Shirataki, Tokyo University of Science, Yamaguchi, *Effect of Heat Treatment in Air on Thermoelectric Properties of Ba₈Al₁₆Si₃₀-Based Clathrate*
- 7 P. Aranguren, D. Astrain*, A. Rodríguez, A. Martínez, Department of Mechanical Engineering, Public University of Navarre, UPNa. Pamplona, SPAIN, *Design And Experimentation Of A Thermoelectric Generator Placed In The Exhaust Channel Of A Combustion Chamber*
- 8 Alaa Attar^{1,2}, HoSung Lee¹ and Sean Weera¹, ¹Western Michigan University, Michigan, USA, ² King Abdulaziz University, Rabigh, Saudi Arabia, *Experimental validation of the optimum design of automotive air-to-air thermoelectric air conditioner (TEAC)*
- 9 Kwangho Bae^{1,2}, Soon-Mok Choi³, Kyung-Hun Kim¹, Hyoung-Seuk Choi¹, Won-Seon Seo¹, Il-Ho Kim⁴, Soonil Lee¹, Hae Jin Hwang², ¹KICET, Korea, ² Inha Univ., Korea, ³ Koreatech. Korea, ⁴ Korea Natl. Univ. of Transportation, Korea, *Power generation tests after a vibration test and a thermal shock test for thermoelectric modules with CoSb₃/Ti/Cu-Mo interfaces*
- 10 Je-Hyeong Bahk, Kevin Margatan, Kazuaki Yazawa, and Ali Shakouri, Birck Nanotechnology Center, Purdue University, West Lafayette, Indiana 47907, USA, *An online Boltzmann transport simulator for thermoelectric materials research and education*
- 11 M. B. A. Bashir^a, M. F. M. Sabri^a, *S. M. Said^b, D. A. Shnawah^a and M. H. Elsheikh^a, ^aDepartment of Mechanical Engineering, University of Malaya, 50603 KL, Malaysia, ^bDepartment of Electrical Engineering, University of Malaya, 50603 KL, Malaysia, *Microstructure of Mg₂(Si_{0.4}Sn_{0.6})_{1-x}Ti_x (0<x<0.07) thermoelectric materials through cold isostatic pressure (CIP)*
- 12 M. Berrahal¹, M. Ameri², H. Lidjici¹, ¹Univ.of Amar Telidji Laghouat, ²Univ.of Djilali liabes sidi bel abbes, *First-principles investigation of filled skutterudite CeRu₄P₁₂ compound for thermoelectric applications*

- 13 Anders B. Blichfeld*†, Simon Johnsen* & Bo B. Iversen*, *Center for Materials Crystallography, Department of Chemistry and iNANO, Aarhus University, Langelandsgade 140, 8000, Aarhus C, Denmark †PhD-stipendiate partly founded by SINO Danish Center for Research and Education, *Development of a direct synthesis of ZnSb*
- 14 Kasper A. Borup¹, Johannes de Boor², Heng Wang³, Franck Gascoin, Eckhard Müller², Bo B. Iversen¹, G. Jeffrey Snyder^{3,5}, ¹ Department of Chemistry, Aarhus University, ² Institute of Materials Research, German Aerospace Center, ³ Materials Science, California Institute of Technology, ⁴ Laboratoire CRISMAT UMR 6508 CNRS ENSICAEN, ⁵ ITMO University, *Review of recent advances in thermoelectric measurements*
- 15 R. Brito¹, D. Nemir², M. Barba¹, E. MacDonald¹ and P. Palakurthi¹, ¹University of Texas at El Paso, ²TXL Group, Inc., *Adaptive Switched Capacitor Voltage Boost for Thermoelectric Generation*
- 16 S. Budak¹, M. Baker¹, J. Lassiter², C. Smith³, R. B. Johnson², ¹EECS, AAMU, Huntsville, AL USA; ²Physics, AAMU, Huntsville, AL USA; ³Center for Irradiation of Materials, AAMU, Huntsville, AL USA, *Thermal Annealing Effects on the Thermoelectric and Optical Properties of SiO₂/SiO₂+Cu Nanolayered Thin Films*
- 17 S. Budak^{1*}, S. Guner², C. Muntele³, D. Ila⁴, ¹EECS, Alabama A&M Univ., Normal, AL USA, ² Physics, Fatih Univ., Istanbul/ Turkey, ³Cygnus Scientific Services, Huntsville, AL USA, ⁴Physics, Fayette St. Univ, Fayetteville, NC USA, *Thermoelectric generators from AgBiTe and AgSbTe thin films modified by high energy beam*
- 18 S. Budak^{1*}, E. Gulduren², B. Allen¹, J. Cole¹, J. Lassiter³, T. Colon⁴, C. Muntele⁵, R. Parker⁶, C. Smith⁷, B. Johnson⁴, ¹EECS, AAMU, HSV, AL, ²Physics, UAH, HSV, AL, ³CIM, AAMU, HSV, AL, ⁴Physics, AAMU, HSV, AL, ⁵Cyg. Sci.Ser., HSV, AL, ⁶MAFSC, HSV, AL, ⁷4 SIGHT INC. HSV, AL, *Thermoelectric and Optical Properties of Si/Si+Sb Multinanolayered Thin Films Effected by High Energy Radiation*
- 19 S. Budak¹, J. Lassiter², T. Colon², C. Muntele³, S. Bhattacharjee⁴, M. A. Alim¹, R. B. Johnson², ¹EECS, AAMU, Huntsville, AL USA; ²Physics, AAMU, Huntsville, AL USA; ³Cygnus Scientific Services, Huntsville, AL, USA; ⁴MECE, AAMU, Huntsville, AL USA, *High Energy Radiation Effects on the Thermoelectric Properties of SiO₂/SiO₂+Ge Nanolayered Thermoelectric Generators*
- 20 L. Bulat, I. Drabkin, V. Osvenskii, Yu. Parkhomenko, D. Pshenay-Severin, A. Sorokin, A. Igonina, V. Bublik, M. Lavrentev, ITMO University, St. Petersburg; GIREDMET Ltd., Moscow; Ioffe Physical Technical Institute, St Petersburg; University MISIS, Moscow, *Low temperature transport coefficients of nanostructured Bi-Sb-Te based thermoelectrics*
- 21 Gary E. Bulman, Phil Barletta, Jay Lewis, Michael Manno,^a Avram Bar-Cohen,^a and Bao Yang^a, RTI International, 3040 E. Cornwallis Road, Research Triangle Park, NC 27709 or ^a Department of Mechanical Engineering, University of Maryland, College Park, MD 20742, *High Heat Flux Measurement of Thin-Film Superlattice Thermoelectric Devices*
- 22 Winston D. Carr, and Donald T. Morelli, Michigan State University, *Zinc doped solid solutions of CuInTe₂ and CuGaTe₂*
- 23 T.C. Chasapis¹, Y. Lee¹, G.S. Polymeris², E.C. Stefanaki², E. Hatzikraniotis², X. Zhou³, C. Uher³, K.M. Paraskevopoulos² and M.G. Kanatzidis¹, ¹Dept. of Chemistry, Northwestern Univ., Evanston, IL, 60208, USA, ²Physics Dept., Aristotle Univ., Thessaloniki, GR-54124, Greece, ³Physics Dept., Univ. of Michigan, Ann Arbor, MI, 48109, USA, *Transport Properties of p-type PbSe*
- 24 Haoying Chen and Ruizhi Zhang, School of Physics, Northwest University, *Phase Inequality enhanced Power Factor in Thermoelectric Nanocomposite*
- 25 K. Y. Chen, C. H. Yeh, Y. L. Lin, and R. C. Juang, Green Energy and Environment Research Laboratories, Industrial Technology Research Institute, *Improved thermoelectric effect of Se-doped AgSbTe₂ compound prepared by ball milling and spark plasma sintering*

- 26 Shih-Show Chen¹, Chia-Jyi Liu², Wei-Cheng Wang³, Mei-Huei Wu³, and Ching-Lin Chang³, ¹Dept of Information Tech, Taipei College of Maritime Technology, Tamsui 251, Taiwan, ²Dept of Physics, Nat'l Changhua Univ of Education, Changhua 500, Taiwan, ³Dept of Physics, Tamkang Univ, Tamsui 251 Taiwan, *X-ray absorption spectroscopy study of rare-earth-doped CaMnO_{3-δ}*
- 27 C. H. Cheng¹, Y. S. Ke¹, C. P. Cheng^{1*}, M. J. Dai², C. K. Liu², L. L. Liao², H. H. Hsu², R. C. Juang² and Y. L. Lin², ¹Dept. of Mechatronic Tech., National Taiwan Normal University, Taiwan, ²Industrial Technology Research Institute, Taiwan, *Thermal Bonding of Thermoelectric Lead Telluride Materials Using New SnAg-based Solders with Titanium Doping*
- 28 Xin Cheng, and Xinfeng Tang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China, *Microstructure and Thermoelectric Properties of Cu₂Sn_{1-x}In_xSe₃ prepared by Self-propagating synthesis following Plasma Activated Sintering*
- 29 Hang Chi,¹ Cestmir Drasar,² Petr Lostak,² and Ctirad Uher¹, ¹University of Michigan, United States, ²University of Pardubice, Czech Republic, *Low Temperature Transport Properties of Bi_{2-x}In_xTe₃ Single Crystals*
- 30 Jun-Young Cho, O-Jong Kwon², Gwi-Rang Kim¹, Jae-Hun Han¹, Chan Park¹, ¹Department of Materials Science and Engineering, Seoul National University, Seoul, Korea, ²LG Chem, ³Research Institute of Advanced Materials, Seoul National University, Seoul, Korea, *Effect of Ag addition and partial substitution of Sr and Bi for Ca on the thermoelectric properties of Ca₃Co₄O₉*
- 31 Jeongyong Choi, Yooleemi Shin, Anh Tuan Duong, Van Quang Nguyen, and Sunglae Cho, Department of Physics and Energy Harvest-Storage Research Center, Univ. of Ulsan, *Thermoelectric transport properties of Fe₃O₄ thin films on Si(100) substrates*
- 32 J. Cooley, N. Kazem, and S.M. Kauzlarich, University of California, Davis, *Thermoelectric Properties of the New Zintl Phase Solid Solution, Eu₇Cd₄Sb_{8-x}As_x (x = 2, 3, 4 and 5)*
- 33 T. Dahal¹, G. Joshi², Q. Jie¹, C. Guo¹, Y. C. Lan¹ and Z. F. Ren¹, ¹University of Houston and Texas Center for Superconductivity, Houston, TX 77204, ²GMZ Eng. Inc, Waltham, MA 02453, *Effect of triple fillers in thermoelectric performance of p-type skutterudites*
- 34 Dedi^{1,2,3}, ¹Department of Engineering and System Science, NTHU, Taiwan, ²Institute of Physics, Academia Sinica, Taiwan, ³Nano Science and Technology Program, TIGP, Taiwan, *Thermoelectric properties of single-crystalline Bi₂Se₃ nanowires synthesized using stress-induced growth*
- 35 F. Delorme¹, P. Diaz-Chao², E. Guilmeau², F. Giovannelli¹, ¹Université de Tours, CNRS, CEA, INSA, GREMAN UMR 7347, ²CRISMAT, UCBN, ENSICAEN, *Thermoelectric properties of Ca₃Co₄O₉-Co₃O₄ composites*
- 36 Y.D. Deng, Y.L. Chen, S. Chen, W.D. Xianyu, C.Q. Su, Hubei Key Laboratory of Advanced Technology for Automotive Components, *Research on the Integration of the Automotive Exhaust-based Thermoelectric Generator and the Three-way Catalytic Converter*
- 37 Y.D. Deng, X. Liu, W.S. Wang, Z.B. Tang, C.Q. Su, Hubei Key Laboratory of Advanced Technology for Automotive Components, *Experimental Investigation of Exhaust Thermoelectric System and Application for Hybrid Electric Vehicle*
- 38 Y.D. Deng, Z.B. Tang, C.Q. Su, Y.P. Wang, Hubei Key Laboratory of Advanced Technology of Automotive Parts, Wuhan University of Technology, Wuhan 430070, China, *A Research on the Heat Transfer Issues of Thermoelectric Generators for Automotive Waste Heat Recovery System*
- 39 Y. D. Deng, Y. Zhang, Hubei Key Lab of Advanced Technology for Automotive Components, *Modeling, Simulation and Verification of on-Car Box-Typed Thermoelectric Generation System*
- 40 Naim Derebasi, Muhammed Eltez¹, Fikret Guldiken, Aziz Sever, Klaus Kallis², Halil Kilic¹, Emin N Ozmutlu, Uludag University, Department of Physics, Gorukle Bursa, Turkey, ¹GK Projects GmbH, Germany, ²TU-

Dortmund, *Influence of geometrical factors on performance of thermoelectric material using numerical methods*

- 41 Fivos Drymiotis¹, Tristan W. Day¹, David R. Brown¹, Nicholas A. Heinz¹ and G. Jeffrey Snyder¹, ¹California Institute of Technology, *High-temperature Thermoelectric Properties of $Ag_2Se_{0.5}Te_{0.5}$*
- 42 M. H. Elsheikh^a, M. F. M. Sabri^a, S. M. Said^b, M. H. Hassan^a, B. D. Long^a, D. A. Shnawah^a and M. B. A. Bashir^a, ^aDepartment of Mechanical Engineering, University of Malaya, 50603 KL, Malaysia, ^bDepartment of Electrical Engineering, University of Malaya, 50603 KL, Malaysia, *Microstructure and thermoelectric properties of manganese-filled skutterudite $MnFe_4Sb_{12}$*
- 43 Alireza Faghaninia and Cynthia Lo, Washington University in St. Louis, *Electronic Transport Calculations for Thermoelectrics Using Density Functional Theory: Application to High-Performing Cu-Doped Zinc Antimonides*
- 44 O. Falkenbach¹, A. Schmitz², D. Hartung¹, P. J. Klar¹, E. Mueller^{1,2}, S. Schlecht¹, ¹Justus-Liebig-University, ²German Aerospace Center, *Thermoelectric Properties of Nanostructured $AgPb_mBiTe_{2+m}$*
- 45 Wei Fang¹, Changjun Xie², Shuhai Quan³, Liang Huang⁴, ¹School of Automobile Engineering, Wuhan University of Technology, Wuhan, Hubei, China. ²School of Automation, Wuhan University of Technology, Wuhan, China, *Maximum power point tracking with dichotomy and gradient method for automobile exhaust thermoelectric generators*
- 46 Amir Y. Faraji, and A. Akbarzadeh, Renewable Energy Group; School of Aerospace, Mechanical and Manufacturing Engineering; RMIT University, Melbourne, Australia, *An efficient symbiotic thermoelectric power generation system for commercial application using low-grade heat*
- 47 A. Feldhoff¹, B. Geppert¹, ¹Leibniz University Hannover, *Thermoelectric high-temperature energy harvester based on oxides*
- 48 Armin Feldhoff, Olga Ravkina, Benjamin Geppert, Leibniz University Hannover, *Thermoelectric oxides for high-temperature energy harvesting*
- 49 Bin Feng, JianXie, Tie-Jun Zhu, Gao-Shao Cao, and Xin-Bing Zhao, State Key Laboratory of Silicon Materials and Department of Materials Science and Engineering, Zhejiang University, Hangzhou 310027, China, *Enhanced thermoelectric properties of p-type $CoSb_3$ /graphene nanocomposite*
- 50 P. Ferrando¹, A.F. Lopeandía¹, F.X. Alvarez¹, C. de Tomás¹, M.I. Alonso², M. Garriga², A.R. Goñi^{2,3}, J. Santiso⁴, G. Garcia¹, J. Rodríguez-Viejo^{1,5}, ¹Universitat Autònoma de Barcelona, ²Institut de Ciència de Materials de Barcelona, ³ICREA, ⁴Centre d'Investigació en Nanociència i Nanotecnologia, CIN2, ⁵Matgas Research Center, *Outstanding Thermal Rectification by Engineering Compositional Gradients in $Si_{1-x}Ge_x$ Superlattices*
- 51 Natalia Freik¹, Volodymyr Potyak², and Taras Parashchuk³, Vasyl Stefanyk Precarpathian National University, Ukraine, *Market of Modern Thermoelectric Devices: market needs and proposals*
- 52 Xin Gao, Søren Juhl Andreasen, Søren Knudsen Kær, Lasse Aistrup Rosendahl, Alireza Rezania Kolaei, Department of Energy Technology, Aalborg University, Pontoppidanstraede 101, Aalborg, DK-9220, Denmark, *Heat exchanger selection and optimization of a thermoelectric generator subsystem for HT-PEM fuel cell exhaust heat recovery*
- 53 Yibin Gao¹, Bin He¹, Michael Adams¹, Bartek Wiendlocha² Joseph P Heremans¹, ¹The Ohio State University, Columbus, Ohio, ²AGH University of Science and Technology, Krakow, Poland, *Doping and Alloying study of SnTe based material*
- 54 M.D. Gerboth¹, D.G. Walker², ¹Materials Science Program, Vanderbilt University, ²Mechanical Engineering, Vanderbilt University, *Calculation of phonon relaxation rates in nanoscale thermoelectric materials*

- 55 J. E. Gonzalez¹, V. Sanchez² and C. Wang¹, ¹Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de Mexico (UNAM), ²Departamento de Fisica, Facultad de Ciencias, UNAM, *Renormalization approach to the thermoelectricity in nanowire heterostructures*
- 56 Ayelet Graff¹ and Yaron Amouyal¹, ¹ Department of Materials Science and Engineering, Technion – Israel Institute of Technology, *Effects of lattice defects on thermoelectric properties of niobium-doped calcium-manganite compounds for energy harvesting applications*
- 57 Jennifer Graff¹, Xiaoyu Zeng², Arash Mehdizadeh Dehkordi¹, Jian He², Terry M. Tritt^{1,2}, ¹Department of Materials Science and Engineering, Clemson University, ²Department of Physics and Astronomy, Clemson University, *Exceeding the Filling Fraction Limit: an Approach to Enhancement in ZT of Single-Filled $Pr_yCo_4Sb_{12}$*
- 58 E. Günes¹, B. Landschreiber¹, M. T. Elm², P. J. Klar², S. Schlecht¹, ¹Instituts for Inorganic and Analytical Chemistry, Justus Liebig Universität Giessen, ²I. Physikalisches Institut, Justus Liebig Universität Giessen, *Inclusion of bismuth- and carbon nanotubes in $Bi_{1-x}Sb_x$ -alloys and the characterization of their thermoelectric properties*
- 59 Yuri G. Gurevich¹ and Igor Lashkevych², ¹Departamento de Física, CINVESTAV-IPN, Apdo., Postal 14-740, 07000 México DF, México, ²UPIITA-IPN, av. IPN No 2580, col. Barrio La Laguna Ticoman, del. GAM, 07340, México DF, México, *Energy and concentration nonequilibriums in the theory of thermoelectric processes*
- 60 Tetsuya Hashimoto, Masashi Sawada, Hiroshi Katsumata, Department of Electronics and Bioinformatics, Meiji University, *Solid phase growth of Mg_2Si thin films on Si(111) and their electrical, structural and optical properties*
- 61 Kazuya Hatakeyama, Tomoyuki Nakamura, Tomio Fujisawa, Hiroki Kobayashi, Yasuo Hikichi, Hiroshi Kurata, Akira Nakamura and Masahiro Minowa, SWCC SHOWA CABLE SYSTEMS CO., LTD, *Demonstration test on thermoelectric generator for high-temperature industrial furnaces*
- 62 E. Hazan, O. Ben-Yehuda and Y. Gelbstein, Department of Materials Engineering, Ben-Gurion University, Be'er-Sheva, Israel, *Multiphysics Modeling of Thermoelectric System Based on Phase Separated, Functional Gradient Chalcogenides*
- 63 Danqi He, Wenyu Zhao*, Jian Yu, Hongyu Zhou, Wanting Zhu, Qingjie Zhang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, *Preparation and Thermoelectric Properties of $YbAl_3$ Thermoelectric Materials with Excessive Al*
- 64 P. Heinrich¹, E. Bauer¹, A. Grytsiv², G. Rogl², P. Rogl², ¹Institute of Solid State Physics, Vienna University of Technology, 1040 Wien, Austria, ²Institute of Physical Chemistry, University of Vienna, 1090 Wien, Austria, *Thermoelectricity and Superconductivity in Ge-based Skutterudites*
- 65 N. Hirayama¹, T. Iida¹, H. Funashima², S. Morioka¹, M. Sakamoto¹, K. Nishio¹, Y. Kogo¹, Y. Takanashi¹, and N. Hamada¹, ¹Tokyo Univ. of Sci. and ²Osaka Univ., *First-principles study on structural and thermoelectric properties of Al- and Sb-doped Mg_2Si*
- 66 Dale Hitchcock¹, Yen-Liang Liu², Yufei Liu¹, Terry M. Tritt¹, Jian He¹, Chia-Jyi Liu², ¹Clemson University, ²National Changhua University of Education, *Low Temperature Thermoelectric Properties and Aging Phenomena of Nanostructure p-type $Bi_{2-x}Sb_xTe_3$*
- 67 Chiachan Hsu¹, Tsehsiao Lee¹, Hsushen Chu¹, Jenndong Hwang¹, Hungchang Hsu², Tsai-kun Huang² and Jingyi Huang², ¹Industrial Technology Research Institute, Taiwan, ²China Steel Corporation, Taiwan, *The thermoelectric properties of high performance N-type PbTe based materials*
- 68 H. C. Hsu¹, Jing-Yi Huang¹, Tsai-Kun Huang¹, Hsu-Shen Chu² and Chia-Chan Hsu², ¹New Mater. Research & Development Dept., China Steel Corporation, ²Dept. of Thermal Management Mater. & Device, ITRI, *Enhancement of Seebeck coefficient in $Bi_{0.5}Sb_{1.5}Te_3$ nano-composite with tellurium nano-precipitations*
- 69 H. H. Hsu^{1,*}, C. H. Cheng², Y. R. Chen¹, B. Y. Sung¹, C. M. Liu¹, R. C. Juang¹, Y. L. Lin¹, and C. P. Cheng², ¹Green Energy and Environment Research Lab., Industrial Technology Research Institute, Taiwan, ²Dept.

- of Mechatronic Tech. National Taiwan Normal University, Taiwan, *Nickel Barrier Layers on Thermoelectric Zinc Antimonite Materials for High Temperature Bonding Applications*
- 70 H. H. Hsu¹, C. H. Cheng^{2,*}, C. H. Huang¹, S. H. Chiou¹, Y. R. Chen¹, R. C. Juang¹, Y. L. Lin¹, and C. P. Cheng²,
¹Industrial Technology Research Institute, Taiwan, ²Dept. of Mechatronic Tech., National Taiwan Normal University, Taiwan, *First-Principles Calculations of Interfacial Thermodynamic Properties of Titanium Barrier and Thermoelectric Lead Telluride*
- 71 Xiaokai Hu, Atsushi Yamamoto, Hiroyuki Takazawa, Kazuo Nagase, Energy Technology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), 1-1-1, Umezono, Tsukuba, Ibaraki 305-8568, Japan, *Finite-element Modeling and Simulation for Thermoelectric Generator Module Testing Instrument*
- 72 Yufei Hu¹, Sabah K. Bux² and Susan M. Kauzlarich¹, ¹University of California, One Shields Avenue, Davis, California 95616, ²Jet Propulsion Laboratory, Cal Tech, 4800 Oak Grove Drive, Pasadena, California 91109, *Enhanced Thermoelectric Performance of Se-doped Yb₁₄MnSb₁₁*
- 73 Ben Huang¹, Xuqiu Yang¹, Lisheng Liu¹, and Pengcheng Zhai^{1,2}, ¹Department of Engineering Structure and Mechanics, Wuhan University of Technology, China, ²State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China, *Effects of Van Der Waals Bonding on the Compressive Mechanical Behavior of Bi₂Te₃ Bulk: a Molecular Dynamics Study*
- 74 Feng-zhu Huang, Gui-Ying Xu*, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, *Thermoelectric properties of Cu_xGe_{1-x}Te fabricated by high pressure sintering method*
- 75 Tito E. Huber, Scott D. Johnson, Albina Nikolaeva, and Leonid Kolopko, Howard Nanoscale Science and Engineering Facility, Howard University, Washington DC 20059, USA, International Magnet Laboratory, Breslau, Poland and Academy of Sciences of Moldova, *Thermoelectric Nanowire Junction Photoresponse*
- 76 Hyun-Chang Hwang¹, Ji-Soo Lee¹, Pan-zo kim¹, Sang-Hyuk Lim, Seok-Ho Rhi¹, Kye-Bock Lee¹, Wook-Hyun Lee², Ki-Woo Lee², ¹Chungbuk National University, ²Korea Institute of Energy Research, *Characteristic studies of Alkali-metal Thermoelectric Power generation system*
- 77 Sunbin Hwang^{1,2}, William J. Potscavage^{2,3}, Ryosuke Nakamichi^{1,2} and Chihaya Adachi^{1,2,3}, Department of Chemistry and Bio Chemistry, Univ. of Kyushu¹, Center for Organic Photonics and Electronics Research (OPERA)², International Institute for Carbon Neutral Energy Research (WPI-I2CNER)³, *Study on the thermoelectric properties of conducting polymer having a thick film-thickness with the aim of manufacture of flexible organic thermoelectric module*
- 78 W. Ibarra-Hernández, J.-Y. Raty, Université de Liège, Liège, Belgium, *Thermoelectric properties of two stacking sequences of crystalline GST-225*
- 79 M. Ikeda¹, E. Royanian¹, L. Salamakha¹, E. Bauer¹, N. Iosad², J. Haferkamp², G. Span², ¹Institute of Solid State Physics, Vienna University of Technology, A-1040 Wien, Austria, ²O-Flexx Technologies GmbH, Auf der Höhe 49, 47059 Duisburg, Germany, *Probing sputtered Bi-Te mesoscale films by the 3 ω method*
- 80 Satoaki Ikeuchi, Junichi Ishikawa, Kenji Shimada, ULVAC-RIKO Inc., *Development of power generating efficiency evaluation instrument in thermoelectric module*
- 81 Hiroshi Irie¹, Hirofumi Kakemoto¹ and Chiori Azuma¹, ¹Univ. of Yamanashi, *Photo-Tunable and Photo-Induced Thermoelectric Properties of Tungsten Trioxide*
- 82 Keita O. Ito¹, Ryosuke O. Suzuki^{1,2}, ¹Hokkaido University, ²Japan Science and Technology Agency (JST), *Dimension of thermoelectric power generation module under constant heat flux*
- 83 Takashi Itoh¹ and Akira Tominaga², ¹Nagoya Univ., ²Nagoya Univ. (Present: Daiso Steel Co., Ltd.), *Influence of Grain Refining on Thermoelectric Properties of Mg₂Si-based Compound*

- 84 J. Jamradloedluk¹ and C. Lertsatitthanakorn², ¹Post-Harvest and Agricultural Machinery Engineering, Faculty of Engineering, Mahasarakham University, Maha Sarakham, Thailand ²School of Energy, Environment and Materials, Bangkok, Thailand, *Updraft gasifier integrated with thermoelectric generator using different biomass pellets*
- 85 Ju-Chan Jang¹, Seok-Ho Rhi¹, Kye-Bock Lee¹, Wook-Hyun Lee², Ki-Woo Lee², ¹Chungbuk National University, ²Korea Institute of Energy Research, *Heat Pipe Assisted Thermoelectric Power Generation Technology for Waste Heat Recovery*
- 86 Bhakti Jariwala¹, D. V. Shah², Vipul Kheraj² and N.M. Ravindra³, ¹Cedar Grove R&D LLC, NJ, USA, ²S.V.N.I.T., Surat, India, ³NJIT, NJ, USA, *Influence of Doping on Structural and Optical Properties of Bi₂Te₃ Thin Films*
- 87 Bong-Jun Jeon, Dong-Kil Shin and Il-Ho Kim*, Korea National University of Transportation, Korea, *Synthesis and Thermoelectric Properties of Ce_{1-z}Yb_zFe_{3.5}Ni_{0.5}Sb₁₂ Skutterudites*
- 88 Soo yeol Jeong, Jeong Hyun Park, Soo Jin Kim, Wan Jin Lim, Jong-Soo Lee*, Department of Energy Systems Engineering, DGIST, Daegu, 711-873, Korea, *Enhanced thermoelectric properties using multifunctional nanocrystals and nanocomposites*
- 89 Arreerat Jiamprasertboon¹, Yoshihiko Okamoto², Zenji Hiroi², Theeranun Siritanon¹, ¹School of Chemistry, Institute of Science, Suranaree University of Technology, 30000, Thailand, ²Institute for Solid State Physics, University of Tokyo, Kashiwa, Chiba 277-8581, Japan, *Thermoelectric properties of Sr and Mg double-substituted LaCoO₃ at room temperature*
- 90 Fengxing Jiang and Jingkun Xu, Physics Department, Jiangxi Science and Technology Normal University, Nanchang 330013, PR China, *Thermoelectric Performance of PEDOT:PSS-doped Polyaniline Nanowire*
- 91 Gyeong-Seok Joo, Dong-Kil Shin and Il-Ho Kim*, Korea National University of Transportation, Korea, *Thermoelectric Properties of Double-Filled p-Type La_{1-z}Yb_zFe_{4-x}Co_xSb₁₂ Skutterudites*
- 92 Priyanka Jood¹, Michihiro Ohta¹, Hirotaka Nishiate¹, Atsushi Yamamoto¹, Oleg I. Lebedev², David Berthbaud², Suekuni Koichiro³, Masaru Kunii¹, ¹National Institute of Advanced Industrial Science and Technology (AIST), ²Laboratoire CRISMAT, ³Hiroshima University, *Thermoelectric properties of misfit layered sulfides (LaS)_{1+m}TS₂ (T= Cr, Nb) prepared through CS₂ sulfurization*
- 93 Rei-Cheng Juang, Bing-Hung Chang, Yu-Li Lin, Green Energy & Environment Research Laboratories, Industrial Technology Research Institute (ITRI), *Thermal absorber coating for non-contact thermoelectric generator*
- 94 P. Jund¹, K. Niedziolka¹, C. Colinet² and JC Tédénac¹, ¹ICGM University Montpellier 2 France ²SIMAP, Grenoble, France, *Influence of defects on the properties of thermoelectric materials: an ab initio study*
- 95 Hirofumi Kakemoto¹, Takuto Kawano², Kensuke Ozawa², and Hiroshi Irie^{1,2}, ¹Clean Energy Research Center, University of Yamanashi, ²Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, *Thermal conductivity of Non-stoichiometric Tungsten Bronze type Oxide Barium Sodium Niobate*
- 96 T. Katkus, G. Peleckis, S.X. Dou, Institute for Superconducting & Electronic Materials, University of Wollongong, Australia, *High Temperature Thermoelectric Power Generation Module Measurement System*
- 97 Daisuke Kato and Kouta Iwasaki, Toyota Boshoku Corporation, *Preparation and Thermoelectric Properties of Mg₂Si-Mg₂Sn-Si Nanocomposites via Mechanochemical Reaction of Mg₂Si and Sn*
- 98 Yukari Katsura¹, Hidenori Takagi^{1,2}, ¹Univ. of Tokyo, ²Max Planck Inst. for Solid State Research, *Material dependence of sound velocity and minimum phonon thermal conductivity from first-principles*
- 99 Takuto Kawano¹, Hirofumi Kakemoto¹ and Hiroshi Irie¹, ¹Univ. of Yamanashi, *Thermoelectric Properties of LiNiO₂-NiO Multicomponent Ceramics*

- 100 K. Kayamura, H. Ishiyama, S. Makino, H. Kuribayashi, M. Takeda, Nagaoka Univ. of Tech., *Influence of Process Temperature on Crystal Structure and Thermoelectric Properties of Divalent Hexaborides*
- 101 Nasrin Kazem¹, Saneyuki Ohno², Antonio Hurtado¹, G. Jeffrey Snyder², Susan M. Kauzlarich¹,
¹Department of Chemistry, University of California, One Shields Ave., Davis, CA 95616, USA, ²Materials Science, California Institute of Technology, 1200 E. California Boulevard, Pasadena, CA 91125, USA, *High-Temperature Thermoelectric Properties of $\text{Eu}_9\text{Cd}_{4-x}\text{CM}_{2+x-y}\text{O}_y\text{Sb}_9$: Stuffed $\text{Ca}_9\text{Mn}_4\text{Bi}_9$ type structure with Coinage Metals (Cu, Ag, Au)*
- 102 B. Khasimsaheb¹, Rajesh Kumar^{1*}, S.Neeleshwar^{1*}, B Shivaiah², Ajay Dhar², USBAS, GGS Indraprastha University, New Delhi, INDIA, ²Metals & Alloys Group, CSIR-NPL, New Delhi, INDIA, *Synthesis and Characterization of Cu_{2-x}Se nanoparticles for Thermoelectric Application*
- 103 B Khasimsaheb¹, S Neeleshwar^{1*}, B Shivaiah², Ajay Dhar², S Amrithapandiyani³ & B K Panigrahi³, ^{1*} USBAS, GGS Indraprastha University, New Delhi, India, ² National Physical Laboratory, New Delhi, India, ³Materials physics division, IGCAR, Kalpakkam, Tamilnadu, India, *Thermo power Enhancement in PbTe nanocubes*
- 104 Chaehoon Kim¹, Atta Ullah Khan², Yongsang Cho¹, Hyungeui Lee^{1*}, Hyuksoo Lee¹, Takao Mori², ¹ LG Innotek Components R&D Center 55, Hanyangdaehak-ro, Sangnok-gu, Ansan-si, 426-791, Korea, ² National Institute for Materials Science (NIMS), Namiki 1-1, Tsukuba 305-0044, Japan, *Uniformity study of large sized ingots of Bi_2Te_3 -based thermoelectric materials prepared with the Spark Plasma Sintering (SPS) method*
- 105 J. H. Kim¹, D. W. Park¹, W. J. Kim¹, J. Y. Choi¹, T. Jeong², J. S. Ha³, and T. S. Oh¹, ¹Department of Materials Science and Engineering, Hongik Univ., ²Korea Photonics Technology Institute, ³Faculty of Applied Chemical Engineering, Chonnam National Univ., *Active Cooling Capability and Power Generation Characteristics of a Thermoelectric Thin Film Device Surrounding a High-Power LED Chip*
- 106 Kwang-Chon Kim^{1,2}, Seong Keun Kim¹, Hyun Jae Kim², Jin-Sang Kim¹, ¹Electronic Materials Research Center, Korea Institute of Science and Technology, ²School of Electrical and Electronic Engineering, Yonsei University, *Thermoelectric properties of Sn-doped Bi_2Te_3 epitaxial films*
- 107 KyongJu Kim¹, GilGeun Lee¹ and GookHyun Ha², ¹Pukyong National University, ²Korea Institute of Materials Science, *Synthesis of N-type bismuth telluride based powder by a mechano-chemical process*
- 108 Sun Jin Kim, Ju Hyung We, and Byung Jin Cho, Department of Electrical Engineering, KAIST, 291 Daehak-Ro, Yuseong, Daejeon, Republic of Korea, *Glass Fabric-based Wearable Thermoelectric Generator*
- 109 Sunphil Kim¹, Yibin Gao¹, Bin He¹, Gloria Lehr³, Yeseul Lee⁴, Mercuri G. Kanatzidis⁴, Donald T. Morelli³, and Joseph P. Heremans^{1,2}, ¹.Department of Mechanical & Aerospace Engineering ².Department of Physics, Ohio State University ³.Department of Chemical Engineering and Materials Science, Michigan State University ⁴.Department of Chemistry, Northwestern University, *Negative magnetoresistance and s-f scattering in $\text{Pb}_{1-x}\text{Eu}_x\text{Se}$*
- 110 Y. Kinemuchi, K. Mimura and K. Kato, National Institute of Advanced Industrial Science and Technology, (AIST), *Seebeck coefficient of nano-grained perovskite titanates*
- 111 H. Kitagawa¹, T. Matsuura¹, T. Kato², K. Kamata², ¹Shimane University, Japan, ² Mitsui Engineering and Shipbuilding Co., Ltd., Japan, *Thermoelectric Properties of Cu-doped $\text{Bi}_2\text{Te}_{2.85}\text{Se}_{0.15}$ Prepared by Liquid-Phase Growth Using a Sliding Boat*
- 112 Shota Koda, Kengo Kishimoto, Koji Akai, Hironori Asada, and Tsuyoshi Koyanagi, Yamaguchi University, *High temperature thermoelectric properties of sintered $\text{K}_8\text{Ba}_{16}\text{Ga}_{40}\text{Sn}_{96}$ with the type-II clathrate structure*
- 113 Machhindra Koirala¹, Mani Pokharel², Hui Wang¹, Yucheng Lan¹, Chuanfei Guo¹, Cyril Opeil², and Zhifeng Ren¹, ¹Department of Physics and TCSUH, University of Houston, Houston, TX 77204, USA, ²Department of Physics, Boston College, Chestnut Hill, MA 02467, USA, *Nanostructured rare-earth Kondo system with high power factor in cryogenic temperature range*

- 114 L. A. Konopko^{1,2}, A. A. Nikolaeva^{1,2} and T. E. Huber³, ¹Institute of Electronic Engineering and Nanotechnologies, Chisinau, Moldova, ²Int. Lab. of High Magnetic Fields and Low Temperatures, Wroclaw, Poland, ³Howard University, Washington, USA, *Anisotropic thermoelectric generator made from semimetal microwire*
- 115 Rachel J. Korkosz¹, Shiqiang Hao², Fengyuan Shi², Vinayak P. Dravid², C. Wolverton², and Mercuri G. Kanatzidis¹, ¹Department of Chemistry and ²Department of Material Science and Engineering, Northwestern University, *Conduction Band Offset Engineering in n-type PbTe*
- 116 .V. Korobeynikov¹, S.V. Ovsyannikov^{2,3}, V.V. Shchennikov¹, ¹Institute of Metal Physics of UB RAS, Russia, ²Bayerisches Geoinstitut, Universität Bayreuth, Germany, ³Institute for Solid State Chemistry of UB RAS, Russia, *Thermoelectric Element Based on ternary Bi₂Te₃-based crystals With Power Factor Enhancement Using High-Pressure Technique*
- 117 B. Kucukgok¹, B. Hussain¹, I. T. Ferguson¹ and N Lu², ¹Department of Electrical and Computer Engineering, University of North Carolina at Charlotte, ²Department of Engineering Technology, University of North Carolina at Charlotte, *Structural and Thermoelectric Properties of MOCVD Grown Zinc Oxide Thin Films*
- 118 Shohei Kudo¹, Saburo Tanaka², Koji Miyazaki³, Masayuki Takashiri¹, ¹Tokai University, ²Nihon University, ³Kyushu Institute of Technology, *Film thickness dependence of thermal resistance of nanocrystalline bismuth-telluride based thin films using 3w method*
- 119 Masaya Kumagai¹, Ken Kurosaki¹, Yuji Ohishi¹, Hiroaki Muta¹, and Shinsuke Yamanaka^{1,2}, ¹Osaka University, ²University of Fukui, *Synthesis and characterization of metastable phase Al₆Ge₅*
- 120 Kyosuke Kusagaya¹, Harutoshi Hagino², Saburo Tanaka³, Koji Miyazaki², Masayuki Takashiri¹, ¹Tokai University, ²Kyushu Institute of Technology, ³Nihon University, *Impact on compressive and tensile stress of thermoelectric properties of bismuth-telluride based thin films*
- 121 Ali Lahwal^{1*}, S. Bhattacharya¹, Jian He¹, Di Wu², S. J. Poon², Lee Williams³, T. M. Tritt^{1*}, ¹Department of Physics and Astronomy, Clemson University, Clemson, SC, ²Department of Physics, University of Virginia, Charlottesville, VA, ³Nanosonic Corporation, Blacksburg, VA, *Lattice Thermal Conductivity Of n-type Si₈₀Ge₂₀ Alloys via incorporation of YSZ nanoparticles Using Spark Plasma sintering Technique*
- 122 Go-Eun Lee¹, A-Young Eum¹, Kwon-Min Song¹, Il-Ho Kim^{1*}, Young Soo Lim², Won-Seon Seo², Byeong-Jun Choi³ and Chang-Won Hwang³, ¹Korea National University of Transportation, Korea, ²Korea Institute of Ceramic Engineering and Technology, Korea, ³SEPEL, Korea, *Preparation and Thermoelectric Properties of n-Type Bi₂Te_{2.7}Se_{0.3}:D_m*
- 123 HoSung Lee¹, Alaa Attar^{1,2}, Sean L. Weera¹, ¹Western Michigan University, ²King Abdulaziz University, *Performance Prediction of Commercial Thermoelectric Cooler Modules Using the Effective Material Properties*
- 124 Jae-Uk Lee^{1,2}, Deuk-Hee Lee¹, Sang Soon Yim^{1,3}, Dow-Bin Hyun¹, Sahn Nahm², and Jin-Sang Kim¹, ¹Korea Institute of Science and Technology, ²Korea University, ³Yonsei University, *Effect of Sn doping on the thermoelectric properties of n-type Bi₂(Te,Se)₃ alloys*
- 125 K. H. Lee¹, S. M. Choi², D. J. Yang³, ¹Kangwon National University, ²Korea University of Technology and Education, ³Samsung Advanced Institute of Technology, *Enhanced thermoelectric performance of p-type Bi-Sb-Te alloys by co-doping of Ga₂Te₃ and Ag*
- 126 WookHyun Lee* and ChongPyo Cho, Korea Institute of Energy Research, 102 Gajeong-ro, Yuseong, Daejeon, Korea, *Experimental Investigation of AMTEC System with Capillary Wicks for Circulating Sodium Liquid*
- 127 Woo-Man Lee, Dong-Kil Shin and Il-Ho Kim*, Korea National University of Transportation, Korea, *Thermoelectric and Transport Properties of Yb₂Fe_{4-x}Ni_xSb₁₂ Skutterudites*

- 128 Y. Lee¹, S. H. Lo¹, C. Chen¹, H. Sun², D. Y. Chung³, T. C. Chasapis¹, C. Uher², V. P. Dravid¹, and M. G. Kanatzidis^{1,3}, ¹Northwestern Univ., ²Univ. of Michigan, ³Argonne National Lab., *Contrasting Role of Sb and Bi Dopants in the Enhancement of Thermoelectric Performance of PbSe*
- 129 C. Lertsatitthanakorn, M. Rungsiyopas and S. Sophonronnit, Energy Technology Division, King Mongkut's University of Technology Thonburi, Mechanical Engineering Department, Burapha University, *Performance analysis and economic evaluation of a thermoelectric liquefied petroleum gas (TE-LPG) cook stove*
- 130 Wenjuan Li¹, Guodong Li², Xuqiu Yang¹, Lisheng Liu¹, Pengcheng Zhai^{2*}, 1.- Department of Engineering Structure and Mechanics, Wuhan University of Technology, China, 2.- State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China, *Influence of Nanopores on the Mechanical Behavior of Crystalline CoSb₃: A Molecular Dynamics Study*
- 131 Zhiliang Li, Shuqi Zheng*, Yuzhuo Zhang, Renyuan Teng, Ting Huang, and Guiwu Lu, State Key Laboratory of Heavy Oil Processing and Department of Materials Science and Engineering, China University of Petroleum, Beijing 102249, P.R. China, *High-yield Synthesis, Controllable Evolution and Enhanced Thermoelectric Properties of Te/Bi₂Te₃ Heterostructure Nanostrings*
- 132 Chang-Hyun Lim^{1,2}, Soon-Mok Choi^{3,*}, Won-Seon Seo¹, Kyu Hyoung Lee⁴, Soonil Lee¹, Young Soo Lim¹, Jong-Young Kim¹, and Hyung-Ho Park², ¹KICET, Korea, ²Yonsei University, Korea, ³Koreatech, Korea, ⁴Kangwon National Univ., Korea, *Anisotropy of thermoelectric figure of merit (ZT) in textured Ca₃Co₄O₉ specimens prepared by spark plasma sintering process*
- 133 Kaiwen Lin, Shijie Zhen, Jingkun Xu*, Baoyang Lu*, Jiangxi Key Laboratory of Organic Chemistry, Jiangxi Science and Technology Normal University, Nanchang 330013, PR China, *Thermoelectric properties of poly(dibenzothiophene), poly(dibenzofuran) and their hybrid polymers with 3,4-ethylenedioxythiophene*
- 134 Congcong Liu, Hui Shi, Hongfei Zhu, Jingkun Xu*, Qinglin Jiang, Haijun Song, Zhengyou Zhu, Jiangxi Key Laboratory of Organic Chemistry, Jiangxi Science and Technology Normal University, *Improved Thermoelectric Properties of PEDOT:PSS Nanofilms Treated with Oxalic Acid*
- 135 C. Y. Liu¹, E. D. Case¹, A. D. Facci¹, R. D. Schmidt¹, X. Lu², D. T. Morelli¹, I. B. Perez¹, B. P. Rook¹, and L. T. Drzal¹, ¹Chemical Engineering and Materials Science Department, Michigan State University, East Lansing, MI, ²Physics and Astronomy Department, Michigan State University, East Lansing, MI, *Mechanical properties of tetrahedrite composite materials, including slow crack growth and fracture toughness*
- 136 Gang Liu, Gui-Ying Xu*, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, *Synthesis of PbTe superlattice and epitaxy-like interfaces of P-type Bi_{2-x}Sb_xTe₃*
- 137 Wei Liu, Lynn Endicott, Hang Chi and Ctirad Uher*, Department of Physics, University of Michigan, Ann Arbor, Michigan 48109, USA, *Epitaxial growth and electronic properties of Bi_{2-x}Sb_xTe₃ (0 ≤ x ≤ 2) thin films on Sapphire(0001) substrate*
- 138 Quentin Lognoné and Franck Gascoin, Laboratoire CRISMAT CNRS ENSICAEN UCBN, *n-type bismuth telluride : texture, copper doping and CNT inclusions*
- 139 Marco Longhin^{1,*}; Romain Viennois¹; Didier Ravot¹; Philippe Papet¹, ¹ C2M, Inst Charles Gerhardt Montpellier, Univ Montpellier 2, UMR 5253, F-34095 Montpellier, France, *Effect of composition on CoSi structure and thermoelectrical properties*
- 140 Bruno Lorenzi, Maurizio Acciarri, and Dario Narducci, University of Milano Bicocca, Department of Materials Science, Milano, Italy, *Analysis of Thermal Losses in Various Single Junction Photovoltaic Cells – An Interesting Source for Thermoelectric Heat Recovery*
- 141 Bruno Lorenzi, Andrea Arcari, and Dario Narducci, University of Milano Bicocca, Department of Materials Science, Milano, Italy, *Thermotunneling Effect in Asymmetric Systems*
- 142 Baoyang Lu^{1,2}, Shijie Zhen¹, Jingkun Xu^{1,2,*}, Guoqun Zhao^{2,*}, ¹Jiangxi Key Lab of Organic Chemistry, Jiangxi Science and Technology Normal University, ²Key Lab for Liquid-Solid Structural Evolution and Processing

of Materials, Shandong University, *Highly Stable Hybrid Selenophene-3,4-Ethylenedioxythiophene as Electrically Conducting and Thermoelectric Polymers*

- 143 Baoyang Lu^{1,2}, Shijie Zhen², Jingkun Xu^{1,2,*} and Guoqun Zhao^{1,*}, Jiangxi Key Lab of Organic Chemistry, Jiangxi Science & Technology Normal University, Nanchang 330013, China, School of Materials Science & Engineering, Shandong University, Jinan 250061, China, *Electrosynthesized poly mono-, bi- and triselenophene: Effect of oligomer chain length on the polymer thermoelectric performances*
- 144 Qi Luo,¹ Peng Li,^{2,3} Lanlan Cai,² Pingwang Zhou,² Di Tang,² Pengcheng Zhai,¹ and Qingjie Zhang¹, ¹School of Sciences, Wuhan University of Technology, Wuhan 430070, China. ²School of Mechanical and Electronic Engineering, Wuhan University of Technology, Wuhan 430070, China, *A Thermoelectric Waste Heat Energy Recovery System for Portland Cement Rotary Kilns*
- 145 J. Ma¹, O. Delaire², E. Specht², J. Budai², A. May², M. McGuire², Tao. Hong¹, O. Gourdon¹, D. Abernathy¹, and G. Ehlers¹, ¹Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA, ²Material science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA, *Neutron Scattering Investigation of Phonon Scattering Rates in $Ag_{1-x}Sb_{1+x}Te_{2+x}$*
- 146 L. Mahmoud, M. Alhawari, Y. Abdul Samad, B. Mohammad and K. Laio, Khalifa University of Science, Technology & Research, *An Experimentally Improved Seebeck Coefficient Using Graphene-Based Thermoelectric Generator (TEG)*
- 147 L. Mahmoud, M. Alhawari, Y. Abdul Samad, B. Mohammad, K. Laio & M. Alnaggar, Khalifa University of Science, Tchnology & Research, *Characterization of Graphene-Based Thermoelectric Generator (TEG) Using Cost-Effective Fabrication Process*
- 148 N. P. Maity¹, Reshmi Maity¹, R. K. Thapa² and S. Baishya³, ¹Mizoram University, ²Mizoram University, ³National Institute of Technology, *Analysis of Interface Charge Densities for ZrO₂ Based MOS Devices*
- 149 E. A. Man¹, E. Schaltz¹, L. Rosendahl¹, A. Rezanian¹, D. Platzek², 1. Department of Energy Technology, Aalborg University, Aalborg 9220, Denmark, 2. PANCO GmbH, Germany, *Experimental characterization procedure of thermoelectric generator modules under non-equilibrium thermal conditions*
- 150 S Manikandan^{1*}, S C Kaushik² and Ranjana Arora³, ^{1*}Research Scholar, ²Professor, ³Research Student Centre for Energy Studies, Indian Institute of Technology Delhi, India, *Maximum Power Point Tracking in Thermoelectric Generator operated Thermoelectric Cooler combined system*
- 151 Ikki Matsumoto¹ and Hiroshi Katsumata¹, Izumi Azumaya², Takashi Takahashi², Hiroshi Souma², and Masaaki Ishiyama², ¹ Meiji University, ² Elenix, Inc., *Processing of fine β -FeSi₂ powders and formation of β -FeSi₂ by electric discharge plasma activated sintering*
- 152 K. Matsumoto, K. Akai, K. Kishimoto, H. Kurisu, T. Koyanagi, S. Yamamoto, Yamaguchi Univ., *Study of fluctuation for Ga distribution in Sn clathrate $Ba_8Ga_{16}Sn_{30}$ by Monte-Carlo method*
- 153 P. Mele¹, S. Saini¹, H. Honda¹, K. Matsumoto², K. Miyazaki², A. Ichinose³, L. Molina⁴, P.E. Hopkins⁵, ¹ISSD, Hiroshima Univ., ²Kyushu Inst. of Technol., ³CRIEPI, ⁴Tech. Univ. of Darmstadt, ⁵Univ. of Virginia, *High thermoelectric performance of zinc oxide thin films deposited on amorphous substrates*
- 154 A. A. Melnikov^{1,2}, S. A. Kichik², A. N. Koryakin², V. F. Ponomarev², V. V. Alenkov², ¹National University of Science and Technology "MISIS", ²Crystal Ltd. , *Temperature influence on melt spun p -Bi_{0.5}Sb_{1.5}Te₃ compacted by spark plasma sintering*
- 155 J. Merkisz¹, P. Fuc¹, P. Lijewski¹, A. Ziolkowski¹, K.T. Wojciechowski², ¹Poznan University of Technology, ²AGH University of Science and Technology, *The analysis of exhaust gas thermal energy recovery through a TEG generator in city traffic conditions reproduced on a dynamic engine test bed*
- 156 J. Merkisz¹, P. Fuc¹, P. Lijewski¹, A. Ziolkowski¹, P. Czarkowski², ¹Poznan University of Technology, ²Warsaw University of Technology, *Designing an exhaust gas energy recovery module following measurements performed under actual traffic conditions*

- 157 Shouli Ming, Shijie Zhen, Kaiwen Lin, Jingkun Xu*, Baoyang Lu*, Jiangxi Key Laboratory of Organic Chemistry, Jiangxi Science and Technology Normal University, Nanchang 330013, PR China, *Thermoelectric Performances of Donor-Acceptor-Donor Conjugated Polymers Based on Novel [1,2,5]Thiadiazolo[3,4-c]pyridine Unit*
- 158 Derrick Mott, Maninder Singh, Dipali Ahuja, Mikio Koyano, Shinya Maenosono, School of Materials Science, Japan Advanced Institute of Science and Technology, 1-1, Asahidai, Nomi, Ishikawa 923-1292, Japan, *Preparation of Cu₂S-ZnS Heterostructured Nanoparticle Material with Unique Thermoelectric Properties*
- 159 Xin Mu, Wen-Yu Zhao*, Jian Yu, Hong-Yu Zhou, Zhi-Yuan Liu, Ding-Guo Tang, Qing-Jie Zhang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, *Fabrication and Perfect Thermoelectric Properties of Porous Filled Skutterudite Bulk Materials*
- 160 Xin Mu, Wen-Yu Zhao*, Jian Yu, Hong-Yu Zhou, Zhi-Yuan Liu, Ding-Guo Tang, Qing-Jie Zhang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, *Seed-assisted Growth and Microstructure of Bismuth Nanowires*
- 161 H. Mun,¹ J.-Y. Hwang,² K.H. Lee,^{3*} and S.W. Kim^{1,2*}, ¹Univ. of Sungkyunkwan, ²IBS, ³Univ. of Kangwon, *Cu-Bi-Se-based pavonite homologue: a promising thermoelectric material with low lattice thermal conductivity*
- 162 Kazuo Nagase¹, Priyanka Jood¹, Masaru Kunii¹, Hiroyuki Takazawa¹, Mercouri G. Kanatzidis^{2,3}, Atsushi Yamamoto¹, and Michihiro Ohta¹, ¹National Institute of Advanced Industrial Science and Technology (AIST), ²Northwestern University, ³Argonne National Laboratory, *Thermoelectric generators with high-performance nanostructured PbTe bulk thermoelectric materials*
- 163 Reo Nakagawa¹, Hiroshi Katsumata¹, Shiro Sakuragi², and Satoshi Hashimoto², ¹Department of Electronics and Bioinformatics, Meiji University, ²Union Materials Inc., *Sticking-free synthesis of Mg₂Si by vertical gradient freezing method using liquid encapsulants*
- 164 Takashi Nakamura, Yasuo Kogo, Tsutomu Iida, Naomi Hirayama, Masashi Ishikawa, Keishi Nishio, and Yoshifumi Takanashi, Department of Materials Science and Technology, Tokyo University of Science, 6-3-1 Niijuku, Katsushika-ku, Tokyo 125-8585 Japan, *Comparison between finite element method calculations and measured data in terms of the output power of an Mg₂Si thermoelectric chip and a unileg couple*
- 165 Tomoyuki Nakamura¹, Kazuya Hatakeyama¹, Masahiro Minowa¹, Youhiko Mito², Koya Arai³, Tsutomu Iida³ and Keishi Nishio³, ¹SWCC SHOWA CABLE SYSTEMS CO., LTD., ²Showa KDE Co. Ltd., ³Department of Materials Science and Technology, Tokyo University of Science, *Power generation performance of π -structure thermoelectric module using silicide element*
- 166 Tomoyuki Nakamura^{1,3}, Kazuya Hatakeyama¹, Masahiro Minowa¹, Youhiko Mito², Koya Arai³, Tsutomu Iida³ and Keishi Nishio³, ¹SWCC SHOWA CABLE SYSTEMS CO., LTD., ²Showa KDE Co. Ltd., ³Department of Materials Science and Technology, Tokyo University of Science, *Power generation performance of π -structure thermoelectric module with Mg₂Si and MnSi_{1.73}*
- 167 Yoshiaki Nakamura^{1,2,*}, Masayuki Isogawa, Tomohiro Ueda¹, Jun Kikkawa¹, and Akira Sakai¹, ¹Osaka University, ²PRESTO-JST, *Stacking structures of epitaxial Si nanodots and their thermal conductivity*
- 168 V. Narayan¹, M. Pepper², J. Griffiths¹, G. A. C Jones¹, H. E. Beere¹ and D. A. Ritchie¹, ¹Cavendish Laboratory, University of Cambridge, J J Thomson Avenue, Cambridge CB3 0HE, UK, ²Department of Electrical and Electronic Engineering, University College London, Torrington Place, London WC1E 7JE, *Giant Low-Temperature Thermopower in a Novel Correlated Electron Phase in Two-Dimensional Electron Systems*
- 169 M. Nedelcu¹, J. Schroeder², M. Apostol³, ¹PulseTEG Co- Bucharest RO, ²Up Start Co.-Tx USA, ³Atomic Physics Institute-Magurele, RO, *Thermoelectric generators with important improvement in conversion efficiency by new design and pulse operation. (PULSE-TEG)*

- 170 M. Nedelcu¹, V.S. Stanciu², M. Apostol¹ F.I. Hantila³, I. Barsan², ¹ ICPE-IE-Bucharest RO, ² ICPE, RO, ³ UPB-Magnat, RO, *Thermoelectric generator with increased efficiency for space application*
- 171 D. Nemir¹, J. Beck¹, N. Prasad² and P. Taylor³, ¹TXL Group, Inc., ²NASA Langley Research Center, ³US Army Research Laboratory, *Thermoelectric Properties of Shock Consolidated Bi_{0.5}Sb_{1.5}Te₃ Nanopowders*
- 172 Kaspar K. Nielsen¹, Dennis Christensen¹, Nini Pryds¹, Hao Yin², Peter Riis², Paul N. Egginton², Rasmus Bjørk¹, ¹DTU Energy Conversion, Technical University of Denmark, ²TEGnology ApS, Vejle, Denmark, *Characterization of a Mg₂SiSn/Zn₄Sb₃ thermoelectric module using an improved thermoelectric module test device*
- 173 A.A. Nikolaeva^{1,2}, L.A. Konopko^{1,2}, T.E. Huber³, Gh. I. Para¹, A.K. Tsurkan¹, ¹Ghitu IEEN, AS, Moldova, ²ILHMFLT, Wroclaw, Poland, ³Howard University, Washington, U.S.A., *Features Of Diffusion Thermopower Of Quantum Bi Wires Under Anisotropic Deformation*
- 174 A.A. Nikolaeva^{1,2}, L.A. Konopko^{1,2}, T.E. Huber³, A.K. Tsurkan¹, O.V. Botnary¹, ¹ Ghitu IEEN, AS, Moldova, ²ILHMF and Low Temperatures, Wroclaw, Poland, ³ Howard University, USA, *Anisotropy Thermopower in Quantum Wires of Pure And p-Doped Bismuth*
- 175 Shunsuke Nishino¹, Keisuke Ohdaira² and Mikio Koyano^{1,2}, ¹School of Materials Science, Japan Advanced Institute of Science and Technology, ²Green Devices Research Center, Japan Advanced Institute of Science and Technology, *Thermal conductivity measurement of aggregated (Bi_{1-x}Sb_x)₂Te₃ nanoparticles using 3 ω method*
- 176 Lyubomyr Nykyruy¹, Dmytro Freik¹, Lyubov Mezhylovska¹, Rasit Ahiska², Volodymyr Potyak¹, ¹Vasyl Stefanyk Precarpathian National University, Ukraine; ²Gazi University, Turkey, *Pb-Sb(Bi)-Te Thin-Film Condensates for Thermoelectric Application*
- 177 T. Ochi, G. Nie, A. Sumiyoshi, T. Tomida, S. Suzuki, M. Kikuchi, J.Q. Guo, Furukawa Co.,LTD., *Thermoelectric properties of n-type skutterudite (Yb, Ca, Al, Ga, In)_x(Co, Fe)₄Sb₁₂ materials*
- 178 Kensuke Ozawa¹, Hirofumi Kakemoto¹, Shin Nishiyama², and Hiroshi Irie^{1*}, ¹Univ. of Yamanashi, ²Chiba Univ., *Thermoelectric Properties of Non-stoichiometric Silver Antimonate*
- 179 Alexander Page¹, Anton van der Ven², Pierre F. P. Poudeu³, Ctirad Uher¹, ¹Physics, University of Michigan, Ann Arbor, MI, ²Materials, University of California, Santa Barbara, CA, ³MSE, University of Michigan, Ann Arbor, MI, *Ab Initio study of Nano-structured Half-Heusler Alloys*
- 180 Mehdi Pakmehr and Bruce McCombe, Department of Physics, University at Buffalo (SUNY), *Thermoelectric effect in a HgTe based Quantum Well at the cyclotron resonance region with THz laser illumination*
- 181 Hyunbin Park, Yeongkyo Kim and Shiho Kim, Univ. of Yonsei, *Investigating the effects of switch resistance on the maximum power point tracking (MPPT) controller with a boost-buck converter of thermoelectric generators*
- 182 Sang Hyun Park¹, In-Sub Han¹, Sun Jin Kim², Ju Hyung We², Byung Jin Cho², and Jeong-gu Yeo¹, ¹Korean Institute of Energy Research (KIER), 102 Yuseong, Daejeon, Republic of Korea, ²Department of Electrical Engineering, KAIST, 335 Gwahak-ro, Yuseong, Daejeon, Republic of Korea, *The Characteristics of Ceramic Coating to High Temperature Thermoelectric Legs for Anti-Oxidation and Anti-Sublimation*
- 183 Yan-Ling Pei,¹ Haijun Wu,² Jiaqing He,² Li-Dong Zhao³, ¹School of MSE, Beihang University, Beijing 100191, China, ² Department of Physics, SUSTC, 518055, China, ³LEMHE, ICMMO, University Paris-Sud, Orsay F-91405, France, *High thermoelectric performance in n-type BiAgSeS due to intrinsically low thermal conductivity*
- 184 Adam Peng, Bed Poudel, Luke Nally, Al Waring, Gregg Bosak, and Clint Ballinger, Evident Technologies, Troy, NY 12180, *Synthesis of skutterudite materials for industrial applications*

- 185 Jiangying Peng, Chen Yue, Zhixin Zheng, Wanli Xiao, School of Mechanical Science & Engineering, Huazhong University of Science & Technology, Wuhan, P. R. China, *High temperature thermoelectric properties of $\text{Yb}_{0.25}\text{Co}_4\text{Sb}_{12}\text{-Ag}_{2-y}\text{Sb}_y\text{Te}_{1+y}$ nanocomposites*
- 186 Jiangying Peng¹, Liangwei Fu¹, Qiongzheng Liu¹, Ming Liu¹, Junyou Yang¹, Dale Hitchcock², Menghan Zhou² and Jian He², ¹Huazhong Univ. of Science & Technology, ²Clemson Univ., *A study of $\text{Yb}_{0.2}\text{Co}_4\text{Sb}_{12}\text{-AgSbTe}_2$ nanocomposites: simultaneous enhancement of all three thermoelectric properties*
- 187 Susanthri Perera, Adam Peng, Luke Nally, Alfred Waring, Bed Poudel and Clint Ballinger, Evident Technologies, Inc. 65 First Street, Troy, NY 12180, *Flexible Thermoelectric Films of Colloidally grown Nanocrystalline BiTe inks by Simple Air Brush Technique*
- 188 J. G. Perez-Luna, S. Jimenez-Xochimitl, L. A. Moreno-Coria, I. Vivaldo-De la Cruz, Benemerita Universidad Autonoma de Puebla, *Thermoelectric generator by using solar water heating*
- 189 Hans-Fridtjof Pernau, Markus Bartel, Alexandre Jacquot, Markus Winkler, Karina Tarantik, Jana Heuer, Jan D. König, Martin Jäggle, and Kilian Bartholomé, Department of Energy Systems Fraunhofer IPM, *Investigations on novel thermoelectric materials using a high temperature Hall-measurement-setup*
- 190 Reginald D. Pierce and Robert J. Stevens, Rochester Institute of Technology, *Experimental Comparison of Thermoelectric Module Characterization Methods*
- 191 Mani Pokharel^{1*}, Tulashi Dahal², Zhensong Ren¹, Peter Czajka¹, Stephen Wilson¹, Zhifeng Ren² and Cyril Opeil^{1*}, ¹Department of Physics, Boston College, Chestnut Hill MA 02467, USA, ²Department of Physics and TcSUH, University of Houston, Houston, TX 77204, USA, *Thermoelectricity of Ce-based heavy Fermion compounds CeCu_6 and CeAl_3*
- 192 V. Ponnambalam and D.T. Morelli, Department of Chemical Engineering and Materials Science, Michigan State University, East Lansing, MI 48824-1226, *Thermoelectric investigation of pseudo binary system PbTe-CoSe_2*
- 193 A. V. Prajapati^a, Y. A. Sonvane^b, and P. B. Thakor^a, ^aDepartment of Physics, V. N. South Gujarat University, Surat, India, ^bDepartment of Applied Physics, S. V. National Institute of Technology, Surat, India, *Theoretical investigation of Thermo electric power of Liquid Semiconductors*
- 194 Kuanrong Qiu, CANMET Energy, Natural Resources Canada, Ottawa, Ontario, Canada K1A 1M1, *Electrical power generation in fuel-fired heat equipment using cascade thermoelectric devices*
- 195 ¹S. M. Rahman, ¹S. M. Said, ¹S. R. Sahamir, ²B. D. Long, ²M. F. M. Sabri, ¹Department of Electrical Engineering, University of Malaya, 50603, Kuala Lumpur, Malaysia, ²Department of Mechanical Engineering, University of Malaya, 50603, Kuala Lumpur, Malaysia, *Thermoelectric Property Enhancement of Poly (3, 4-ethylenedioxythiophene)/Poly (styrenesulfonate) (PEDOT: PSS) Films Through Nitric Acid (HNO_3) Treatment*
- 196 Mohammad Mamunur Rashid¹, Mohd Faizul Mohd Sabri¹, Suhana Binti Mohd Said², Shahrir Razey Sahamir² and Bui Duc Long¹, ¹Department of Mechanical Engineering, University of Malaya, Malaysia, ²Department of Electrical Engineering, University of Malaya, Malaysia, *Fabrication and thermoelectric characterization of a segregated-network polymer composites with hybrid fillers of CNT and Bi-Te nanowire*
- 197 Gill Reid, Chemistry, University of Southampton, Southampton, SO17 1BJ, UK, *Supercritical Fluid Electrodeposition of Thermoelectric Materials – A New Method for the Production of Extreme Nanowires*
- 198 Guang-Kun Ren, Fan Fu, Yao-Chun Liu, Yuan-Hua Lin, Yonggao Yan, Xinfeng Tang, Ce-Wen Nan, ¹Tsinghua University, Beijing, 100084, P. R. China, ²Wuhan University of Technology, Wuhan, 430070, P. R. China, *Enhancement of the Thermoelectric Performance of BiCuSeO Ceramics by Zn Doping*
- 199 J. E. Rodríguez, Department of Physics, Universidad Nacional de Colombia, *Transport and thermoelectric properties of oxygen deficient LCuO-Sr polycrystalline ceramics*

- 200 E.I. Rogacheva,¹ D.A. Orlova,¹ A.N. Doroshenko,¹ A.Yu. Sipatov,¹ M.S. Dresselhaus,² and S. Tang²,
¹National Technical University "Kharkov Polytechnic Institute", Ukraine, ²Massachusetts Institute of
Technology, USA, *Concentration anomalies of the thermoelectric properties in $Bi_{1-x}Sb_x$ solid solutions thin
films*
- 201 M.A. Ruvinskii,¹ B.M. Ruvinskii,² ¹Precarpathian National University, ²National University of Oil and Gas,
Ivano-Frankivsk, Ukraine, *Thermoelectric Effect in Graphene Armchair Nanoribbons*
- 202 Abu Sadeque, Afsana Sharmin, Vamsi Gaddipati, and Shaikh Ahmed, Department of Electrical and
Computer Engineering, Southern Illinois University at Carbondale, 1230 Lincoln Drive, Carbondale, IL
62901, USA, *Multiscale Design of Nanostructured Thermoelectric Coolers: Effects of Contact Resistances*
- 203 Yatir Sadia¹, Naor Madar¹, Ilan Kaler¹, Yaniv Gebstein¹, ¹Department of material engineering Ben-Gurion
University, *Additions of Fe in chimney ladder stoichiometry $MnSi_{1.73}$ with excess Si*
- 204 Yatir Sadia¹, TSION Ohaion², Ohad Ben-Yehuda¹, Meidad Korngold¹, Yaniv Gebstein¹, ¹ Department of
material engineering Ben-Gurion University, ² Department of chemistry Ben-Gurion University,
Evaporation Rates in PbTe and GeTe Based Thermoelectric Alloys
- 205 Pranati Sahoo, Yuanfeng Liu and Pierre F. P. Poudeu*, Laboratory for Emerging Energy and Electronic
Materials, Department of Materials Science and Engineering, University of Michigan, Ann Arbor, MI
48109, USA, *Nanometer scale interface engineering boosts the thermoelectric performance of n-type
 $Ti_{0.4}Hf_{0.6}Ni_{1+z}Sn_{0.975}Sb_{0.025}$ alloys*
- 206 S. Saini¹, P. Mele¹, H. Honda¹, K. Matsumoto², K. Miyazaki³, A. Ichinose⁴, L. Molina⁵, P.E. Hopkins⁶,
¹ISSD, Hiroshima Univ²D. of Mater. Sci. KIT³D. of Mech. Eng KIT, Japan⁴CRIEPI, Japan⁵D. of Mater. & Geosci.
Tech Univ of Darmstadt⁶D. of Mech. & Aerospace Eng, Univ of Virginia, *Thermoelectric performance of Al-
doped ZnO thin films on SrTiO₃ substrate at different deposition temperatures*
- 207 M. Saleemi¹, M.Y. Tafti¹, M. Johnsson², M. Muhammed¹ and M. S. Toprak¹, ¹Department of Materials and
Nano Physics, KTH Royal Institute of Technology, Sweden. ²Department of Materials and Environmental
Chemistry, Stockholm University, Sweden, *Chemical synthesis of copper (II) telluride compounds for
thermoelectric applications*
- 208 E. S. Santos¹, R. D. Mansano¹, D. Z. Florio², L. M. Ferreira³, M. A. Avila³, ¹Escola Politécnica, Universidade
de São Paulo (USP), ²CECS, Universidade Federal do ABC (UFABC), ³CCNH, Universidade Federal do ABC
(UFABC), *Synthesis and Characterization of thin films for thermoelectric devices*
- 209 Naoki Sato¹, Koichi Kitahara¹, Yoshiki Takagiwa¹, Akihide Kuwabara², Noriyuki Uchida³, and Kaoru
Kimura¹, ¹The University of Tokyo, ²Nanostructures Research Laboratory, Japan Fine Ceramics Center,
³National Institute for Advanced Industrial Science and Technology (AIST), *Reduced grain size effect on
thermoelectric property and phonon dispersion of RuGa₂*
- 210 Luke Schoensee¹, Yanliang Zhang¹ (corresponding author), Tony Christensen¹, Martin Cleary², Xiaowei
Wang², ¹Department of Mechanical & Biomedical Engineering, Boise State University, ²GMZ Energy, Inc.,
*Nanostructured Bulk High-Temperature Thermoelectric Generator for Efficient Automotive Waste Heat
Recovery*
- 211 Sungho Seo¹, Sun Yu¹, Minwook Oh², Youngkeun Jeong³ and Bongyoung Yoo¹, ¹Hanyang university (ERICA
campus), ²Korea Electrotechnology Research Institute, ³Pusan National University, *Synthesis of highly
anisotropic $(Bi,Sb)_2Te_3$ with massively synthesized Te nanowires*
- 212 Xiaoyu She, Xianli Su, Yonggao Yan, Xinfeng Tang*, State Key Laboratory of Advanced Technology for
Material Synthesis and Processing, Wuhan University of Technology, Wuhan, China, *Facile Preparation of
Higher Manganese Silicide by Thermal Explosion with Plasma Activated Sintering technique*
- 213 Ayano Shimodate, Tsutomu Iida, Yumiko Oto, Naomi Hirayama, Yasuo Kogo, Keishi Nishio, and Yoshifumi
Takanashi, Department of Materials Science and Technology, Tokyo University of Science, 6-3-1 Niiyuku.
Katsushika, Tokyo, *Thermoelectric behavior of n-type Mg_2Si concurrently doped with antimony and zinc*

- 214 Dong-Kil Shin¹, Il-Ho Kim^{1*}, Kwan-Ho Park², Soonil Lee² and Won-Seon Seo², ¹Korea National University of Transportation, Korea, ²Korea Institute of Ceramic Engineering and Technology, Korea, *Thermal Stability of $La_{0.9}Fe_3CoSb_{12}$ Skutterudite*
- 215 K. J. Shin, J. Y. Choi and T. S. Oh, Department of Materials Science and Engineering, Hongik University, Korea, *Micro Power Generation Characteristics of Thermoelectric Thin Film Devices Processed by Electrodeposition and Flip Chip Bonding*
- 216 Yooleemi Shin, Duong Anh Tuan, Jeongyong Choi, and Sunglae Cho*, Department of Physics and Energy Harvest Storage Research Center, University of Ulsan, Ulsan 680-749, South Korea, *Formation of $FeSi$ and Mn_4Si_7 thin films and thermoelectric properties*
- 217 Yooleemi Shin¹, Duong Anh Tuan¹, Jongphil Kim², Younghun Hwang¹, Jeongyong Choi¹, and Sunglae Cho^{1*}, ¹Department of Physics and Energy Harvest Storage Research Center, University of Ulsan, Ulsan 680-749, South Korea, ²Division of High-Technology Materials Research, Korea Basic Science Institute, Busan 618-230, South Korea, *Thermoelectric power factor of $FeAs_2$ thin films*
- 218 A. Shukla¹, S.Vitta¹, ¹Department of Metallurgical Engineering & Materials Science, Indian Institute of Technology Bombay, Mumbai-4000 76, India, *Effect of partial Ti-substitution with Nb on the elevated temperature thermophysical properties of $SrTiO_3$*
- 219 A. E. Shupenev¹, D. V. Melyukov¹, O. A. Novodvorskii², A. G. Grigor'yants¹, ¹Bauman Moscow State Technical University, ²Institute on Laser and Information Technologies of the Russian Academy of Sciences, *Fabrication of thin film nanostructured flexible thermoelectric material by PLD method*
- 220 F. R. Sie^{1,2}, C. S. Hwang¹, C. H. Kuo², C. H. Yeh², H. Y. Ho², R. C. Juang², Y. L. Lin², and C. H. Lan², ¹Department of Materials Science and Engineering, National Cheng Kung University, Taiwan, ²Industrial Technology Research Institute, Taiwan, *Thermoelectric performance of $Bi_{0.5}Sb_{1.5}Te_3/Sb$ composites fabricated by electroless plating and spark plasma sintering*
- 221 F. R. Sie^{1,2}, Y. H. Tang¹, C. S. Hwang¹, C. H. Kuo², H. Y. Ho², R. C. Juang², Y. L. Lin², and C. H. Lan², ¹Department of Materials Science and Engineering, National Cheng Kung University, Taiwan, ²Industrial Technology Research Institute, Taiwan, *Effects of sintering temperature on thermoelectric properties of $PbTe/Ag$ composites fabricated by chemical plating and spark plasma sintering*
- 222 Baljit Singh^{1,2}, Ashwin Date, Abhijit Date¹, Aliakbar Akbarzadeh¹, RMIT University, Australia, *Experimental Investigation on Effect of Adhesive on The Performance of Thermoelectric Generator*
- 223 Baljit Singh^{1,2}, Ashwin Date, Abhijit Date¹, Aliakbar Akbarzadeh¹, Energy Conservation and Renewable Energy Group, School of Aerospace, Mechanical, and Manufacturing Engineering, RMIT University, P.O. Box 71, Bundoora East Campus, Bundoora, Victoria 3083, Australia, *Experimental Study of Electrical Power Production Using Low Grade Heat from Salinity Gradient Solar Pond with Thermoelectric Generators*
- 224 Maninder Singh, Derrick Mott, and Shinya Maenosono, School of Materials Science, Japan Advanced Institute of Science and Technology, *Unique Structural Properties of Copper Iron Sulfide Nanoparticles for Sustainable Low Temperature Thermoelectrics*
- 225 Maninder Singh, Derrick Mott, and Shinya Maenosono, School of Materials Science, Japan Advanced Institute of Science and Technology, *Bottom-up Wet Chemical Preparation of Chalcopyrite Nanoparticles as Building Blocks for Sustainable Low Temperature Thermoelectrics*
- 226 Haijun Song, Danhua Zhu, Congcong Liu, Jingkun Xu*, Hui Shi, Qinglin Jiang, Zhengyou Zhu, Jiangxi Key Laboratory of Organic Chemistry, Jiangxi Science and Technology Normal University, Nanchang 330013, *Preparation and Thermoelectric Properties of PEDOT-block-PEG/SWCNTs composites*
- 227 D. Srivastava, F. Azough and R. Freer, University of Manchester, UK, *High Temperature Thermoelectric Properties of $(1-x)SrTiO_3 - (x)La_{1/3}NbO_3$ ceramic solid- solution*

- 228 Thomas Stöcker, Jörg Exner and Ralf Moos, University of Bayreuth – Department of Functional Materials, Bayreuth, Germany, *Influence of oxygen on the thermoelectric properties of aerosol-deposited CuFeO₂*
- 229 Thomas Stöcker¹, Bastian Plochmann², Steffen Lang², Reinhold Rüger³, Ralf Moos¹, ¹University of Bayreuth – Department of Functional Materials, Bayreuth, Germany, ²Siemens AG – CT RTC MAT POL-DE, Erlangen, Germany, ³Merck KGaA – PM-PFR-I, Darmstadt, Germany, *Materials for a novel thermoelectric generator with a high degree of design freedom*
- 230 A. Stranz, A. Waag, and E. Peiner, TU Braunschweig University of Technology, Institute of Semiconductor Technology, *Investigation of thermoelectric parameters of Bi₂Te₃ - TEGs assembled using pressure-assisted silver-sintering-based joining technology*
- 231 C. Q. Su, W. S. Wang, X. Liu, Y.D. Deng, Hubei Key Laboratory of Advanced Technology for Automotive Components, *Optimization Design of Cooling Unit for Automotive Exhaust-based Thermoelectric Generators*
- 232 C.Q. Su, M. Xu, N.Q. Tong, W.S. Wang, Y.D. Deng, Hubei Key Laboratory of Advanced Technology for Automotive Components, *Analysis and Optimization of the Thermal Deformation in an Automotive Exhaust-based Thermoelectric Generator*
- 233 K. Suekuni¹, F. S. Kim¹, H. I. Tanaka¹, M. Ohta², A. Yamamoto², and T. Takabatake^{1,3}, ¹AdSM, ³IAMR, Hiroshima University, ²National Institute of Advanced Industrial Science and Technology (AIST), *Carrier Doping Effect on the Thermoelectric Properties of Synthetic Colusites*
- 234 T. Sugahara¹, Y. Hirose¹, K. Ohata², S. Nambu², C. Kawate³, Y. Okabe³, Y. Kohno³, A. Saitou³, and K. Suganuma¹, ¹Institute of Scientific and Industrial Research, Osaka University, ²E-ThermoGentek Co., Ltd., ³Cemedine Co., Ltd., *Fabrication of Flexible Thermoelectric Generation Modules for Applying to Heat Sources with the Curved Surface*
- 235 Fan Sul¹, Hua He², Svilen Bobev², Susan M. Kauzlarich¹, ¹Department of Chemistry, University of California, ²Department of Chemistry and Biochemistry, University of Delaware, *Investigation on alkali metal contained Type I Clathrate for thermoelectric application*
- 236 Y. Sun¹, S. H. Seo¹, and B. Y. Yoo^{1,2}, ¹Department of Materials Engineering, Hanyang University, 426-791 Ansan, Gyeonggi-do, Republic of Korea, ²Department of Bionanotechnology, Hanyang University, 426-791 Ansan, Gyeonggi-do, Republic of Korea, *Thermoelectric Thin Film- Preparation, Characterization and its Congugation with Electrochemistry and Photoelectrochemistry for enviroment, energy conversion, and biology application*
- 237 Jang-Yeul Tak^{1,2}, Kyu Hyoung Lee³, Jong-Young Kim¹, Chang-Hyun Lim¹, Won-Seon Seo¹, Young Soo Lim¹, Hyung Koun Cho² and Soon-Mok Choi⁴, ¹ Korea Institute of Ceramic Engineering and Technology, Korea, ² Sungkyunkwan Univ., Korea, ³ Kangwon National Univ., Korea, ⁴ Koreatech, Korea, *Optimization of synthesis conditions of Na_{0.75}CoO₂ for high thermoelectric performance*
- 238 Y. Takagiwa,¹ E. Imai,² T. Yoshida,¹ D. Yanagihara,¹ I. Kanazawa,² and K. Kimura¹, ¹The University of Tokyo, Japan, ²Tokyo Gakugei University, Japan, *Thermoelectric Properties of Complex Structure Borides: Cu-doped β-boron and ternary Ti₁₀Ru₁₉B₈ Compounds*
- 239 Tsunehiro Takeuchi^{1,2,3}, Akio Yamamoto^{1,3}, Swapnil Ghodke³, and Naoya Hiroishi³, ¹Totayo Technological Insitute, ²PRESTO-JST, ³Nagoya University, *Thermoelectric properties of (Mn,W)Si_v prepared by use of rapidly quenching technique*
- 240 Saburo Tanaka¹, Masayuki Takashiri², Koji Miyazaki³ and Naoe Sasaki¹, ¹Nihon University, ²Tokai University, ³Kyushu Institute of Technology, *Lattice Thermal Conductivities of Anisotropic Materials with Size Effect*
- 241 Z.B. Tang, Y.D. Deng, C.Q. Su, X.H. Yuan, Hubei Key Laboratory of Advanced Technology of Automotive Parts, Wuhan University of Technology, Wuhan 430070, China, *Fluid Analysis and Structure Melioration of A Heat Exchanger Applied for ATEG based on Computational Fluid Dynamics*

- 242 Cong Tao¹, Gang Chen¹, Yu Mu¹, Lisheng Liu¹ And Pengcheng Zhai^{1,2,3}, ¹Department of Engineering Structure and Mechanics, Wuhan Univ. of Technology, ²State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan Univ. of Technology, *Simulation and Design of Vehicle Exhaust Power Generation System Based on Thermal-Mechanical-Electrical Coupling Analysis*
- 243 M. Thielen¹, P. Streit¹, M. Ataei², A. Boegli², P.-A. Farine², C. Hierold¹, ¹Micro and Nanosystems, ETH Zurich, Switzerland, ²EPFL ESPLAB, Switzerland, *Thermoelectric energy harvesting for energy autonomous active EEG electrodes*
- 244 T. A. Tollefsen^{1,2}, D. N. Wright³, M. Engvoll², H. Middleton¹, O. Grimsrud², A. Sesselmann⁴, O. M. Løvvik⁵, ¹University of Agder, ²TEGma AS, ³SINTEF ICT, ⁴German Aerospace Center, ⁵SINTEF Materials and Chemistry, ⁶University of Oslo, *Thermo-mechanical stresses in a metallized thermoelectric leg*
- 245 T. Tomida, A. Sumiyoshi, G. Nie, T. Ochi, S. Suzuki, M. Kikuchi and J. Q. Guo, Furukawa Co., Ltd., *Large pellet fabrication of filled skutterudite materials and their thermoelectric properties*
- 246 Naoki Toshima, Keisuke Oshima, Yosuke Ohkawachi, Shoko Ichikawa, Yukihide Shiraishi, Tokyo Univ. of Sci. Yamaguchi, *Novel Hybrid Organic Thermoelectric Materials Containing Carbon Nanotubes and Soluble Polymer Complexes without Conducting Polymers*
- 247 ¹Namrata Tripathi, ²Archana Shukla, ³David T. Marx, ^{1,3}Dept of Physics, Illinois State University, USA ²Dept of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, India, *Recent Advances on Polymer Based Thermoelectric Materials*
- 248 H. L. Tsai and L. W. Lai, Da-Yeh University, *Applications of TEG for waste heat recovery of LED lighting*
- 249 D. Y. Nhi Truong^{1,2}, D. Berthebaud¹, H. Kleinke², F. Gascoin¹, ¹Laboratoire CRISMAT, Caen, France, ²Department of Chemistry, University of Waterloo, Waterloo, Canada, *Reduction of thermal conductivity of Higher Manganese Silicides by nanocomposites*
- 250 Naohito Tsujii, Takao Mori, and Yukihiko Isoda, National Institute for Materials Science, Tsukuba, Japan, *Thermoelectric properties of CuFeS₂ and Cu₉Fe₉S₁₆ based alloys with high power factors at room temperature*
- 251 I. Uriya, H. Kitaoka, M. Takeda, Nagaoka Univ. of Tech., *Microstructure and thermoelectric properties of Mg₂Si-Si eutectic alloy*
- 252 T. T. X. Vo, Q. N. Pham, T. N. H. Le, C. Byl, P. Ribot, D. Berardan, D. Dragoë, N. Dragoë, ICCMO, Univ. Paris-Sud 11, F-91405 Orsay, France, *Effect of the nanostructuration on the thermoelectric properties of Ta_xSn_{1-x}O₂ materials*
- 253 Spencer Waldrop and Donald Morelli, Michigan State University, *Optimization of the Power Factor of PtSb₂ by Tellurium, Iron, and Ytterbium Substitution for Cryogenic Peltier Cooling Applications*
- 254 Guiwen Wang¹, Kunling Peng¹, Lijie Guo¹, Guoyu Wang², Xiaoyuan Zhou¹, ¹Chongqing University, ²Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences, *Rapid Fabrication of Nanostructured CuIn_{1-x}Yb^xTe² Compounds and their Improved Thermoelectric Performance*
- 255 Ling-Hua Wang and Li-Shin Chang, Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan, *Thermoelectric Properties of P-type Ba₈Ga₁₆Ge₃₀ Type I Clathrates Prepared by the Vertical Bridgman Method*
- 256 Yilin Wang, Jingyi Zhang, Wei Wang, School of Chemical Engineering and Technology, Tianjin University, *Preparation of Bi₂Te₃/nano-SiC Composite Thermoelectric Films by Electrodeposition*
- 257 Yilin Wang, Jingyi Zhang, Hongyun Ma, Wei Wang, School of Chemical Engineering and Technology, Tianjin University, *Effect of SiC Nanoparticles on the Electrochemical Reduction Behaviors of Bi₂Te₃ Compound*

- 258 Sarah J. Watzman¹, Yibin Gao¹, Hyungyu Jin¹, Stephen R. Boona¹, Joseph P. Heremans¹, ¹Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, Ohio, 43210, ²Department of Physics, The Ohio State University, Columbus, Ohio, 43210, *Thermomagnetic Properties of Single-Crystal Holmium and Single-Crystal Iron*
- 259 Sean Weera, HoSung Lee, and Alaa Attar, : Department of Mechanical and Aerospace Engineering, Western Michigan University, *Modeling and Optimization of Solar Thermoelectric Generators*
- 260 Tian-Ran Wei¹, Heng Wang², Zachary M. Gibbs², G. Jeffrey Snyder², Chao-Feng Wu¹ and Jing-Feng Li^{1,*}, ¹Tsinghua University, ²California Institute of Technology, *Thermoelectric properties of Sn doped p-type Cu₃SbSe₄: a compound with large effective mass and small band gap*
- 261 Bartek Wiendlocha^{1,2}, (1) AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, 30-059 Krakow, Poland, (2) Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH 43210, USA, *Application of Bloch Spectral Functions for studying resonant impurities in thermoelectric materials*
- 262 Waruna Wijesekara¹, Lasse Rosendahl¹, David Brown² and, G. Jeffrey Snyder², ¹Department of Energy Technology, Aalborg University, Pontoppidanstraede 101, DK-9220, Aalborg East, Denmark, ²Materials Science, California Institute of Technology, 1200 East California Boulevard, Pasadena, CA 91125, USA, *Introducing unileg thermoelectric generator design for oxide thermoelectrics*
- 263 Kedsaporn Wongsim^{1*}, Jindaporn Jamradloedluk¹, Chaloenporn Lertsatitthanakorn², Mahasarakham University, Khamriang, Kantarawichai, Maha Sarakham 44150, Thailand, ²School of Energy, Environment and Materials, 126 Pracha Uthit Rd., Bang Mod, Thung Khru, Bangkok 10140, Thailand, *A Thermoelectric Dryer with an Adsorption System for Food Dehydration*
- 264 Guangxi Wu,¹ Xiong Yu², ¹Department of EECS, ²Department of CE, Case Western Reserve University, *Thermoelectric Energy Harvesting System Design for Pavement Monitoring Sensors*
- 265 Guangxi Wu,¹ Xiong Yu,² ¹Department of EECS, ²Department of CE, Case Western Reserve University, *The Possibility of a Current-Source Thermoelectric Power Generator and its Corresponding Structure Design*
- 266 Guangxi Wu,¹ Xiong Yu,² ¹Department of EECS, ²Department of CE, Case Western Reserve University, *An Advanced Multiphysics Simulation Model for Thermoelectric Power Generator*
- 267 J. Wu, X. Xia, Y. Tang, X. Li, S. Bai, L. Chen, Shanghai Institute of Ceramics, Chinese Academy of Sciences, *Effects of addition of nanophase Si₃N₄ particles on the thermoelectric properties of silicon-germanium alloys*
- 268 W.C. Wu¹, Z.L. Du¹, J.L. Cui¹, Z.T. Shi¹, Y. Deng², Ningbo Univ. of Tech., Beihang of Univ., *Design, fabrication and Performance of a low-middle thermoelectric temperature sensor*
- 269 Yue Wu, and Scott Finefrock, School of Chemical Engineering, Purdue University, *Nanomaterial-coated Fiber Based Low-Cost Thermoelectric for Low-Grade Heat Recovery*
- 270 Yue Wu, Haoran Yang, Scott Finefrock, Haiyu Fang, School of Chemical Engineering, Purdue University, *Nanowire and Nanowire Heterostructure Composite Based Thermoelectric*
- 271 L. Xi¹, Y. T. Qiu¹, S. Zheng¹, X. Shi¹, W. Zhang^{1*}, L. D. Chen¹, Jiong Yang² and Jihui Yang², ¹ Shanghai Institute of Ceramics, Chinese Academy of Sciences, China, ²University of Washington, Seattle, USA, *Complex doping of group 13 elements Ga and In in caged skutterudite CoSb₃*
- 272 Qiao Xia, Gui-Ying Xu*, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, *Thermoelectric properties of La_xGe_{1-x}Te fabricated by high pressure sintering method*

- 273 W.J. Xie^{1,2}, S. Populoh¹, K. Gałazka^{1,3}, X.X. Xiao², L. Sagarna¹, Y.F. Liu⁴, M. Trottmann¹, J. He⁴, A. Weidenkaff^{1,2}, ¹Empa; ²Univ. of Stuttgart; ³Univ. of Bern; ⁴Clemson Univ., *Thermoelectric study of crossroads material MnTe via sulfur doping*
- 274 Zheng-Zhong Xie¹, Chii-Shyang Hwang^{1*} and Chia-Hung Kuo², ¹Department of Materials Science and Engineering, National Cheng Kung University, Taiwan, ²Industrial Technology Research Institute, Taiwan, *Fabrication and thermoelectric properties of $CuMn_{1-x}O_2$ ($x=0\sim 0.2$) ceramics*
- 275 Zhibo Xing, Zongyue Li, Qing Tan, Tianran Wei, Chaofeng Wu, and Jing-Feng Li, School of Materials Science and Engineering, Tsinghua University, Beijing, *Synthesis and Composition Optimization of p-type $AgSn_mSbTe_{m+2}$ Thermoelectric Materials*
- 276 Qisheng Xu, Electric Power Research Institute of Guangdong Power Grid Corporation, Guangzhou, 510000, Guangdong Province, China, *Morphology and release kinetics parameters of mercury in coal gangue*
- 277 Qisheng XU and Libao YIN, Electric Power Research Institute of Guangdong Power Grid Corporation, Guangzhou, 510000, Guangdong Province, China, *Experimental Study The Influence of Bromine, Iron on Particulate Mercury Formation*
- 278 Xiao Xu¹, Feng Dai¹, Lihong Zhu², Gui-Ying Xu^{1*}, ¹School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, ²China Electronics Technology Group Corporation, Beijing 100846, China, *Thermoelectric properties of $V_xMn_yCr_{1-x-y}Si_2$*
- 279 Shuto Yamasaka¹, Yoshiaki Nakamura^{1,2}, Tomohiro Ueda¹, Shotaro Takeuchi¹ and Akira Sakai¹, ¹Graduate School of Engineering Science, Osaka University, Japan, ²PRESTO, JST, Japan, *Thermal and electrical properties of Si films including epitaxial Ge nanodot phonon-scatterers*
- 280 Dongwang Yang¹, Tingting Luo², Xianli Su¹, Yonggao Yan¹, Xin-feng Tang^{1,a}, ¹State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, ²Center for Materials Research and Analysis, Wuhan University of Technology, Wuhan 430070, China, *Rapid Preparation of n-type Thermoelectric BiAgSeS Compounds by Using Combustion Synthesis Technology*
- 281 Jian Yang¹, Giri Joshi¹, Ran He², Pawan Banjade¹, Mike Engber¹, Xiaowei Wang¹, Martin Cleary¹ and Zhifeng Ren², ¹GMZ Energy Inc., Waltham, MA 02453, ²Department of Physics, University of Houston, Houston, TX 77004, *Effects of tin doping on p-type $Hf_{0.5}Zr_{0.5}CoSb_{1-x}Sn_x$ for power generation applications*
- 282 Xu-qiu Yang¹, Peng-cheng Zhai¹, 2 Li-sheng Liu^{1,2}, ¹ Department of Engineering Structure and Mechanics, and ²State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, China, *Ba-filling effect on the tensile mechanical properties of crystalline $CoSb_3$: A molecular dynamics study*
- 283 Yulong Yao, Hao Zhang and Joseph W. Brill, Physics Department, University of Kentucky, *Measurements of In-Plane Thermal Diffusivities of Layered Organic Semiconductors by ac-Calorimetry*
- 284 Z. Yao, X. Y. Li and L.D. Chen, Shanghai Institute of Ceramics, Chinese Academy of Sciences, *Control of ingot microstructure of Yb filled skutterudite compound*
- 285 Kazuaki Yazawa¹, Armin K Silaen², Bin Wu², Chenn Qian Zhou², and Ali Shakouri¹, ¹ Purdue University, ² Purdue University Calumet, *Cost effective topping thermoelectric power generation on coal fired power plants*
- 286 Xiangrong Ye¹, Gang Chen¹, Bo Duan^{1,3}, Pengcheng Zhai^{1,2}, ¹Department of Engineering Structure and Mechanics, Wuhan Univ. of Technology ²State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan Univ. of Technology, *Influence of Te-Se-S triple doping on the Microstructure and Thermoelectric Properties of $CoSb_3$ compounds*
- 287 C. C. Yeh and H. Y. Ko, Industrial Technology Research Institute, *Thermal Properties Measurements of Bulk Thermoelectric Materials Using Laser Flash Technique*

- 288 Libao Yin and Peixin Wu, Electric Power Research Institute of Guangdong Power Grid Corporation, Guangzhou, 510000, Guangdong Province, China, *Morphology and release kinetics parameters of mercury in coal gangue*
- 289 Kang Yin, Qiang Zhang, Wei Liu, Xianli Su, Yonggao Yan, Xinfeng Tang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, Hubei, 430070, China, *High performance $Mg_{2.16}(Si_{0.3}Sn_{0.7})_{0.98}Sb_{0.02}$ solid solution with different nano-precipitates*
- 290 Youngjae Yoo, Kwang Seok Jang, O Hwan Kwon, Cheon Taek Hong, Sung-Goo Lee, Jooheon Kim*, Song Yun Cho, Division of Advanced Materials, Korea Research Institute of Chemical Technology, *School of Chemical Engineering & Materials Science, Chung-Ang University, *Structure and property relationship of polymer/nanocarbon hybrids for flexible thermoelectric applications*
- 291 Sin-Wook You, Dong-Kil Shin, Soon-Chul Ur and Il-Ho Kim*, Korea National University of Transportation, Korea, *Solid-State Synthesis and Thermoelectric Properties of $Mg_2Si_{0.5}Ge_{0.5}Sb_m$*
- 292 Yonghui You¹, Xianli Su¹, Xinfeng Tang^{1,a}, State Key Laboratory of Advanced Technology For Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China, *Thermoelectric Properties and phase transformation mechanism of the Cu_3SbS_3 Compound Prepared by Combustion Synthesis*
- 293 Xianqiang Yue, Chenguang Fu, Pingjun Ying, Tiejun Zhu, Xinbing Zhao, Department of Materials Science and Engineering, Zhejiang University, *Alloying combined with optimizing carrier concentration for high performance PbTe-based materials*
- 294 D. B. Zhang, B. P. Zhang, University of Science and Technology Beijing, *Preparation of C-doped ZnO Ceramics by Hydrothermal Synthesis and Spark Plasma Sintering for thermoelectric applications*
- 295 Hung-Bin Zhang¹, Jia-You Lee¹, Hung-Yu Shen¹, Tiao-Yuan Wu², Chan-Wei Wu², and Chun-Da Chen², ¹Department of Electrical Engineering, National Cheng Kung University, Taiwan, ROC; ²New Materials Research and Development Department, China Steel Corporation, Taiwan, ROC, *Development of MPPT Power Converter Scheme for Thermoelectric Generation System*
- 296 Qiang Zhang, XianLi Su, Yonggao Yan and XinFeng Tang*, State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, Hubei, 430070, China, *Phase segregation and thermoelectric properties of $Mg_2Si_{1-x}Sb_x$ ($0 \leq x \leq 0.025$) prepared by self-propagating high-temperature synthesis*
- 297 Zheng Zhang, Lina Chen, Zijian Chen, Zhongjun Liu, South China University of Technology, *The output characteristics of thermocouple array and its optimize*
- 298 Dong Zheng¹, Saburo Tanaka², Koji Miyazaki³, Masayuki Takashiri¹, ¹Tokai University, ²Nihon University, ³Kyushu Institute of Technology, *Strain effect on specific heat, sound velocity and lattice thermal conductivity of nanocrystalline bismuth antimony telluride thin films*
- 299 Yun Zheng¹, Hongyao Xie¹, Tianle Chen¹, Yonggao Yan¹, Xianli Su¹, and Xinfeng Tang^{1,a}, ¹ Key Laboratory of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan 430070, China, *Mechanical properties of nanostructured $Bi_{0.5}Sb_{1.5}Te_3$ alloys prepared by melt spinning and plasma activated sintering*
- 300 Liu Zhenya¹, Zhang Qiping¹, Dong Cun¹, Zhang Lin¹, Wang Zhidong², ¹State Grid of China, ²State Power Economic Research Institute, *Research on Transmission of Large Scale of Wind, Photovoltaic and Thermal Power in Large Energy Base with Efficiency and Security through UHVDC Project*
- 301 Wei Zhu¹, Yuan Deng¹ and Min Gao², ¹ Univ. of Beihang, China ² Univ. of Cardiff, UK, *Thermal design of thin film solar thermoelectric generator with high output power*
- 302 Amirkoushyar Ziabari, Kazuaki Yazawa, Ali Shakouri, Birck Nanotechnology Center, Purdue University, *Thermal Stress Optimization of Thermoelectric Modules for High Temperature Applications*

303

Ping Zou, Gui-Ying Xu*, Song Wang, School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China, *Thermoelectric properties of $\text{Bi}_2(\text{Te}_{1-x}\text{Se}_x)_3$ nanocrystalline prepared by high pressure sintering technique*