



2018 **MRS**[®]
 SPRING MEETING & EXHIBIT
 April 2–6, 2018 | Phoenix, Arizona
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CALL FOR PAPERS

Abstract Submission Opens—September 29, 2017
 Abstract Submission Deadline—October 31, 2017

REMINDER: In fairness to all potential authors, late abstracts will not be accepted.

Symposium EN10: Thermoelectric Materials, Devices and Applications

The symposium will broadly cover thermoelectric materials, device, and applications. It is set up to invite active scientists world-wide to join together for addressing the currently hot topics in the field of thermoelectrics. As a resurgent active area in materials science, thermoelectric research has attracted much attention, and quite a few great advancements have been made in recent years. There are, however, still many scientific issues yet to be resolved, which requires interdisciplinary collaboration for new breakthroughs. Of special importance are the fundamentals, including electrical and thermal transport in complex compounds and composite materials, sophisticated physical measurements and in-depth characterization of those properties. Symposium contributions should address basic science issues, or explore new phenomena (for example: spin-Seebeck effect), or address obstacles confronting the development of practical applications from emerging materials. Discussion of synthesis, growth mechanisms, and fabrication routes; methods to improve properties important for applications; and discussions that advance understanding of fundamental material science issues should also be welcomed.

Topics will include:

- Synthesis and processing of nanostructure, including (a) solutions to problems for fabricating practical thermoelectric modules; (b) basic requirements for modules made from emerging materials
- Phonon and electron transport properties: (a) intrinsic behavior within grains, crystals, and oriented films; (b) anisotropy; (c) electron correlation; (d) interface properties
- Novel aspects of thermoelectric transport; Spin-Seebeck effect, photo-thermal effects, and topological insulators
- Other thermoelectric properties important for applications
- Novel synthesis routes, atomic layer control, self-assembly, Thermodynamics, kinetics, and growth mechanisms
- Thermoelectric oxides, sulfides, organics, amorphous, other unconventional materials
- Se-, Te-, Si-based compounds, skutterudites, clathrates, half-heuster
- Bulk non-equilibrium synthesis (e.g. melt-spin, ball milling): processing and applications
- Waste-heat recovery, energy harvesting, refrigeration, and other applications

Joint sessions are being considered with **EN16 - Combining Materials, Technologies and Societal Awareness to Harvest Natural and Human-Made Energy Sources.**

Invited speakers include:

Gang Chen	Massachusetts Institute of Technology, USA	Takao Mori	National Institute for Materials Science, Japan
Ling Chen	Beijing Normal University, China	Zhifeng Ren	University of Houston, USA
Ryoji Funahashi	National Institute of Advanced Industrial Science and Technology, Japan	James R. Salvador	General Motors, USA
Franck Gascoin	CRISMAT Laboratory, France	Ctirad Uher	University of Michigan, USA
Yaniv Gelbstein	Ben-Gurion University, Israel	Anke Weidenkaff	University of Stuttgart, Germany
Yuri Grin	Max Planck Institute, Germany	Jihui Yang	University of Washington, USA
Jiaqing He	South University of Science Technology of China, China	Alexandra Zevalkink	Michigan State University, USA
Susan M. Kauzlarich	University of California, Davis, USA	Wenqing Zhang	Shanghai University, China
Jingfeng Li	Tsinghua University, China		

Symposium Organizers

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Keywords

electrical conductivity, energy conversion, thermal conductivity, thermoelectric, thermopower