



CALL FOR PAPERS

Micro and Nano Systems Engineering and Packaging (Track 10 / Session 20 (10-20))

2012 ASME International Mechanical Engineering Congress and Exposition
Houston, Texas
November 9-15, 2012

TOPIC NAME: Micro/NanoScale Phononic Crystals and Acoustic Metamaterials: Fundamentals, Devices and Applications

	PURPOSE AND SCOPE OF TOPIC	
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Whether examined at the nanoscale, microscale or larger, the analysis and manipulation of phonons (a.k.a. phononics) is opening up a new technological frontier with a potential impact to rival that of modern -day electronics. Rather than manipulating electrons, phononic crystal devices manipulate the propagation of mechanical waves through matter by the periodic structuring of materials. Phononic devices have the potential to perform signal processing functions like their electrical counterparts, but with lower energy consumptions. Current demonstrations of this type of device have dimensions on the order of microns and manipulate waves in the acoustic range – Acoustic Metamaterials. Higher frequency phononic devices (>10 GHz) have demonstrated the ability to change the heat transfer properties of materials. Demonstrations of this type of device typically have dimensions on the order of nanometers – Nanoscale Phononic Crystals.

The purpose of this topic is to give researchers in the mechanical sciences a forum by which to meet to and the discuss manipulation of phonons on the micro/nanoscale and to disseminate their work on this topic. The scope of this topic is to:

- 1) Cover new theories and models on the fundamentals of phonon manipulation
- 2) Demonstrate feasible practical reduction to practice of phononic devices
- 3) Show system level integration of phononic components that have real applications

Prospective authors should submit a 400-word abstract via the web tool at the Congress 2012 website (<http://www.asmeconferences.org/Congress2012>) by March 5th, 2012. Final papers will be available on CD-ROM at the meeting. See the Conference website for a detailed Publication Schedule.

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MEMS Division

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