



# CALL FOR PAPERS

ASME 2015 International Mechanical Engineering Congress and Exposition  
Houston, Texas, November 13-19, 2015

## Track 16: Vibration, Acoustics & Wave Propagation SYMPOSIUM ON PHONONIC CRYSTALS AND METAMATERIALS (16-2)

	<b>PURPOSE AND SCOPE OF TOPIC</b>	
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The Structural Acoustics Technical Committee of the Noise Control and Acoustics Division (NCAD) and the Technical Committee on Vibration and Sound of the Design Engineering Division (DED) are co-sponsoring the 2015 Symposium on *Phononic Crystals and Metamaterials*. This symposium will bring together researchers and engineers from universities, government laboratories and industry to discuss research ideas and recent findings in these topics.

Phononic crystals and acoustic/elastic metamaterials are composite/nonuniform materials within which periodic, or generally spatially dependent, elastic or acoustic properties are engineered to achieve exceptional control over wave propagation. Typically phononic crystals exhibit unique wave propagation characteristics at wavelengths comparable to the size of the unit cell's period where Bragg effects from multiple scattering create frequency band gaps that can be exploited. Acoustic/elastic metamaterials use local resonances, and/or other unique elastic and/or inertial properties, to achieve large variations in effective material parameters. These traits are being increasingly utilized for the realization of materials with negative effective bulk modulus, negative effective mass density, and negative index of refraction. Both phononic crystals and metamaterials have fundamental implications to a wide range of applications including focusing, imaging, and advanced noise and vibration control technologies based on interferences, resonances and possibly other phenomena. Topics solicited include, but are not limited to, elastic/acoustic wave propagation phenomena such as band-gap formation, wave localization, waveguides, negative refraction, focusing, and imaging, in one-, two-, and three-dimensional material systems, toward the goal of achieving the complete control of phononic/acoustic energy. Research studies may be experimental, theoretical, and/or numerical in nature and can address efforts to understand the dynamics of these materials and/or the development of design and fabrication techniques.

Prospective authors should submit a 400-word abstract by **March 2, 2015** via the Congress 2015 website at <http://www.asmeconferences.org/Congress2015>. Final papers will be archived online and made available on DVD at the meeting. See conference website for detailed publication schedule.

	<b>SPONSORING DIVISIONS and TECHNICAL COMMITTEES</b>	
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**Structural Acoustics Committee, Noise Control and Acoustics Division (NCAD)  
&  
Technical Committee on Vibration and Sound, Design Engineering Division (DED)**

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**Track 16: Vibration, Acoustics & Wave Propagation**  
*SYMPOSIUM ON*  
**PHONONIC CRYSTALS AND METAMATERIALS (16-2)**

**Previous and Current Keynote Speakers**

2005-Orlando, Florida	---
2006-Chicago, Illinois	M.S. Kushwaha
2007-Seattle, Washington	J. Sanchez-Dehesa*
2008-Boston, Massachusetts	C.T. Sun
2009-Lake Buena Vista, Florida	---
2010-Vancouver, British Columbia	I. El-Kady
2011-Denver, Colorado:	P.A. Deymier
2012-Houston, Texas	V. Laude
2013-San Diego, California	G.W. Milton
2014-Montreal, Quebec	A.N. Norris <sup>^</sup>
<b>2015-Houston, Texas</b>	<b>P. Sheng</b>

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\*Noise Control and Acoustics Division (NCAD) tutorial speaker

<sup>^</sup>Symposium keynote speaker and Control and Acoustics Division (NCAD) tutorial speaker