

CALL FOR ABSTRACTS

ASME 2017 International Mechanical Engineering Congress and Exposition
Tampa, Florida, November 3-9, 2017

Track 1: Acoustics, Vibration, & Wave Propagation

SYMPOSIUM ON

PHONONIC CRYSTALS AND METAMATERIALS (1-1)

PURPOSE AND SCOPE OF TOPIC	
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The Noise Control and Acoustics Division (NCAD) is sponsoring the 2017 Symposium on *Phononic Crystals and Metamaterials*. This symposium, which will be in its **13th year**, 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/non-uniform 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 modulus/ mass density, negative index of refraction, enhanced dissipation, among others. Both phononic crystals and metamaterials have fundamental implications to a wide range of applications including focusing, imaging, thermal transport, flow control, and noise/vibration control 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, waveguides, negative refraction, focusing, imaging, effects of nonlinearity/damping, homogenization, topological phononics, flow control, and nanoscale thermal transport. Research studies may be theoretical, numerical, and/or experimental in nature and can address efforts to understand the dynamics/physics of these materials and/or the development of new materials.

Prospective authors should submit a 400-word abstract by **March 6, 2017** via the Congress 2016 website at <https://www.asme.org/events/imece>. Final submission can be in the form of abstract, extended abstract or full paper. See conference website for detailed publication schedule.

Structural Acoustics Committee, Noise Control and Acoustics Division (NCAD)

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Previous and Current Keynote/Plenary 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 [^]
2015-Houston, Texas	P. Sheng ^{^^}
2016-Phoenix, Arizona	B. Djafari-Rouhani
2017-Tampa, Florida	M. Ruzzene[†]

*Noise Control and Acoustics Division (NCAD) tutorial speaker

[^]Symposium keynote speaker and Noise Control and Acoustics Division (NCAD) Rayleigh Lecture speaker

^{^^}Vibration, Acoustics & Wave Propagation Topic plenary speaker

[†] Symposium plenary speaker and Noise Control and Acoustics Division (NCAD) tutorial speaker