



INTERNATIONAL CONFERENCE ON PHONONIC CRYSTALS,
METAMATERIALS & OPTOMECHANICS

Third Call for Papers

You are cordially invited to **PHONONICS 2011: 1st International Conference on Phononic Crystals, Metamaterials and Optomechanics**, to be held in the renowned art city of Santa Fe, New Mexico, USA, on May 29-June 2, 2011. PHONONICS 2011 is the first conference dedicated to analysis and manipulation of phonons (vibrations in condensed matter). Please feel free to peruse and distribute this document and be sure to visit the conference web site at <http://phononics2011.org>.

Background

The study of phonons – although a core discipline in the conventional condensed matter physics literature – is currently being viewed in a new light. Whether examined at the nanoscale, microscale or larger scales, the analysis and manipulation of phonons (aka *phononics*) is opening up a new technological frontier with a potential impact that could match that of electronics almost half a century ago. Indeed a rival field, photonics, is gathering similar momentum. Looking closely, phononics encompass a range of interconnected disciplines, usually labeled in terms of the type of host “material” that provides the medium for phononic wave propagation. These include *phononic crystals*, *phononic metamaterials*, *superlattices* and *periodic structures*. The application domains that these phononic materials are impacting, with increasing promise, range from vibration isolation in MEMS components, through frequency sensing in RF communications, to nano-scale thermal transport control in semiconductors. With the recent advent of metamaterials, exotic applications are now added to the list such as

acoustic cloaking and superlensing. The interaction of mechanical waves with their optical counterpart in a lattice, i.e., optomechanics, is opening up yet another barrage of opportunities especially in telecommunications.

The coming-of-age of these closely-related disciplines provides a converging point of historical significance for the science of phonons. Last year, an International Workshop on Phononic Crystals took place in Nice, France and was attended by around 30 experts in the field from around the world. Building on this effort, it is now timely for a larger-in-scale international forum to be established and inaugurated to unify all the emerging areas mentioned above and their respective experts under one scope. “PHONONICS 2011” – the first international conference of its kind – aims to fulfill this mission.

Organizers

Chair: Ihab El-Kady, Sandia National Laboratories / University of New Mexico (USA)

Co-Chair: Mahmoud I. Hussein, University of Colorado at Boulder (USA)

International Organizing Committee (IOC)

- Abdelkrim Khelif, Georgia Institute of Technology / CNRS (USA/France)
- Chiara Daraio, California Institute of Technology (USA)
- Jose Sanchez-Dehesa, Univ. Politecnica de Valencia (Spain)
- Massimo Ruzzene, Georgia Institute of Technology (USA)
- Peter Rakich, Sandia National Laboratories (USA)
- Roy H. Olsson III, Sandia National Laboratories (USA)
- Tsung-Tsong Wu, National Taiwan University (Taiwan)

Technical Organizing Committee (TOC)

- Mehmet F. Su, University of New Mexico (USA)
- Zayd C. Leseman, University of New Mexico (USA)
- Charles M. Reinke, Sandia National Laboratories (USA)
- Bruce L. Davis, University of Colorado at Boulder (USA)
- Osama R. Bilal, University of Colorado at Boulder (USA)
- Linda L. Wood, Sandia National Laboratories (USA)
- Bernardo G. Farfan, University of New Mexico (USA)

Scientific Advisory Board (SAB)

To be announced on conference website.

Sponsors (tentative)

The organizers acknowledge and thank the following institutions for their sponsorship:

- Sandia National Laboratories
- University of Colorado at Boulder
- University of New Mexico
- Office of Naval Research

- Air Force Office of Scientific Research
- National Science Foundation
- The American University in Cairo
- Ain Shams University
- Acoustical Society of Egypt
- COMSOL Egypt
- FEI Corporation

Important Dates

15 January, 2011:	Deadline for extended abstract submission
15 January, 2011:	Deadline for Student Fellowship application
15 March, 2011:	Notification of acceptance of extended abstract
31 March, 2011:	Deadline for early registration
29 May, 2011:	Reception and on-site registration
30 May-2 June, 2011:	Technical program
1 June, 2011:	Conference Banquet

Themes and Focus

The conference scientific focus will be on seven main themes underlying the various research tracks in the emerging field of phononics:

1. Phononic crystals
2. Phononic metamaterials
3. Nano-scale phonon transport
4. Wave propagation in periodic structures
5. Phononic MEMS and RF applications
6. Optomechanics
7. Fabrication and characterization for phononics

Submissions and Review

Official deadline for conference submissions was January 15, 2011. However, you can still submit a **two-page extended abstract to the conference post-deadline. While the Conference administration cannot make guarantees for inclusion of post-deadline abstracts in the technical program, the best possible effort will be provided.** Research should be original and unpublished, and should not be under consideration for publication elsewhere. Sessions for oral and poster presentations will be available. Submissions will be through the conference web pages at <http://phononics2011.org>. Authoring guidelines and formatting information are available on the website. Submissions will be reviewed by assigned conference track directors with expertise and authority in the field, or in rare conditions by qualified members of the organizational committees. The review evaluation criteria will be:

- Relevance to the purpose of the conference

- Significance of the submission's contribution to the field (as defined by the author)
- Soundness of theoretical framework and/or methodology (as situated in a discipline)
- Clarity of presentation
- Originality and creativity of ideas (as contextualized by the relevant literature)
- Potential for engaging conference participants
- Overall rating

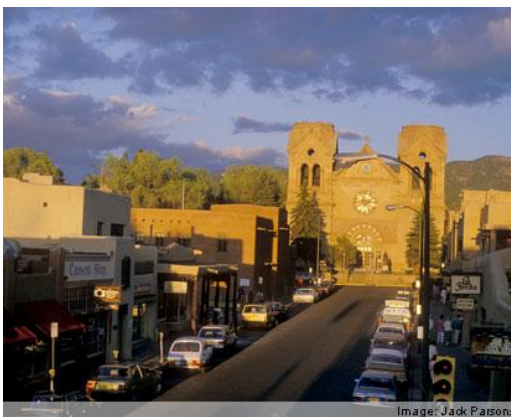
Authors of abstracts submitted prior to the official deadline will be notified of **review results by March 15, 2011.**

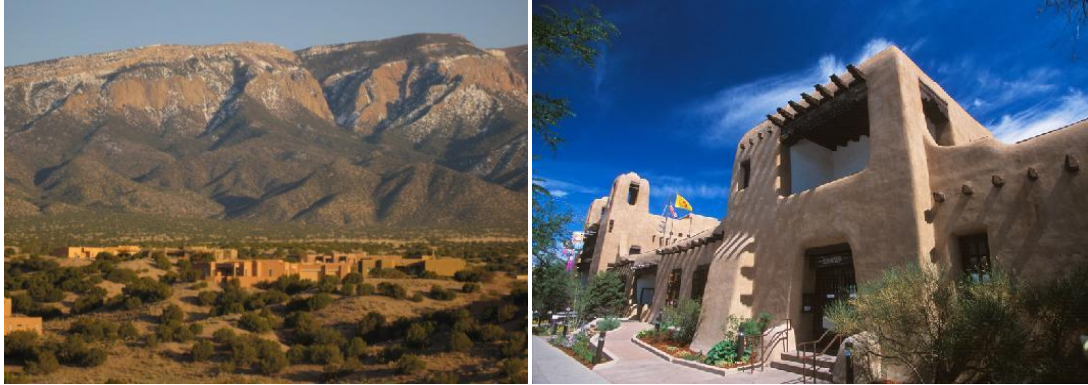
Student Paper Competition

The Scientific Advisory Board (SAB) will judge student papers to award best student-presented oral and poster papers. The competition will be held during the conference. Details for participation will be announced on the conference website.

Venue

Santa Fe, the capital of New Mexico, is located approximately 300 miles south of the Colorado border. With an elevation of 7,199 ft, Santa Fe is the highest state capital in the United States, as well as the oldest. The local population of about 72,000 makes Santa Fe the fourth largest city in New Mexico, and it continues to grow. With Santa Fe Institute, Sandia National Laboratories, Los Alamos National Laboratories in close proximity, Santa Fe routinely hosts a number of well-renowned technical conferences. Its rich history and emphasis on artistic culture also make it a very popular tourist destination.





The Conference will be held in Hilton Santa Fe Historic Plaza. The Hilton Santa Fe is conveniently located in the historic district, which is in the center of Santa Fe. A myriad of restaurants, museums, shopping, and art galleries are easily within walking distance of the hotel. A special room rate has been arranged and available for booking through the online conference registration system. More information is available via the Conference web pages.

Registration

The new registration system allows participants to conveniently register, book hotel rooms at a special Conference-exclusive rate and purchase access to Conference lunches, coffee breaks and Banquet tickets for their guests. Payments can be made online using your credit card at a secure website or by printing, filling and faxing the form accessible at the registration summary page.

Social Program

Social program information is available online and includes hiking in Bandelier, half-day tour of Chimayo village, full-day Taos tour, guided walking tour of Santa Fe and various rafting options. Arrangements for the social program should be made directly with the organizing agencies using the contact information supplied on the respective social program pages. Please mention you are participating PHONONICS 2011 to receive applicable special rates.