



2nd INTERNATIONAL CONFERENCE ON PHONONIC CRYSTALS/
METAMATERIALS, PHONON TRANSPORT & OPTOMECHANICS

Second Call for Papers

You are cordially invited to **PHONONICS 2013: 2nd International Conference on Phononic Crystals/Metamaterials, Phonon Transport and Optomechanics**, to be held in the renowned sea resort city of Sharm El-Sheikh, Egypt on June 2-7, 2013. PHONONICS 2013 is the second conference dedicated to analysis and manipulation of phonons (vibrations in solids). Please feel free to peruse and distribute this document and be sure to visit the conference web site at <http://phononics2013.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 encompasses 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. In 2009, 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, a larger-in-scale international forum was established in and Phononics 2011 was inaugurated as a prime international conference for the field. Phononics 2013, the second in the bi-annual series, welcomes scientists and engineers from all over the world across all related disciplines.

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

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

Important Dates

1 February 2013:	Deadline for extended abstract submission
1 March 2013:	Notification of acceptance of extended abstract
1 April 2013:	Deadline for early registration
2 June 2013:	Reception and on-site registration
3-7 June 2013:	Technical program

Themes and Focus

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

1. Phononic crystals
2. Phononic metamaterials
3. Wave propagation in periodic structures
4. Nano-scale phonon transport
5. Optomechanics and Coupled Phenomena

Submissions and Review

We encourage you to submit a **two-page extended abstract to the conference by February 1, 2013**. Research should be original and not under copyright restrictions by third parties. Sessions for oral and poster presentations will be available. Submissions will be through the conference web pages at <http://phononics2013.org>. Authoring guidelines and formatting information are available on the web site. 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 committee. 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 will be notified of **review results by March 1, 2013**.

Venue

Sharm El-Sheikh is a city situated on the southern tip of the Sinai Peninsula, in Egypt, on the coastal strip between the Red Sea and Mount Sinai. It has a local population of approximately 35,000. It is a very popular sea-resort city attracting tourists from around the world throughout the year. It is also widely viewed as one of the world's premier ports for scuba diving.

In the past decade Sharm El-Sheikh has been known for its impressive conference-hosting capabilities. It has a newly constructed international airport that serves over 7 million passengers a year and has a major convention center. The conference venue will be the Laguna Vista Beach Resort (address: Nabq Bay, Sharm El-Sheikh 12311, Egypt; website: <http://www.balbaagroup.com/laguna-vista-beach/index.htm>).

