

## Metamaterials: Applications, Analysis and Modeling

### Monday January 25, 2010

- 8:30–9:30 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:30–10:20 **Ping Sheng** (Hong Kong University of Science and Technology)  
*Phononic Metamaterials with Negative Dynamic Mass Density*
- 10:30–11:00 *Break*
- 11:00–11:50 **Evgueni Narimanov** (Purdue University)  
*Infinite at Every Frequency: the photonic density of states in (meta)materials with hyperbolic dispersion and related phenomena.*
- 12:00–1:30 *Lunch (on your own)*
- 1:30–2:20 **Guy Bouchitte** (Université de Toulon et du Var)  
*Homogenization of 3D-dielectric photonic crystals and artificial magnetism*
- 2:30–2:45 *Break*
- 2:45–3:35 **George Eleftheriades** (University of Toronto)  
*The Transmission-line Paradigm for Metamaterials: Fundamentals and Selected Applications*
- 3:45–4:00 *Break*
- 4:00–4:50 **Gennady Shvets** (University of Texas at Austin)  
*Spatial dispersion and effective constitutive parameters of electromagnetic metamaterials*
- 5:00–7:00 *Reception and Poster Session (Hosted by IPAM)*

### Tuesday January 26, 2010

- 8:30–9:30 *Continental Breakfast*
- 9:30–10:20 **Nader Engheta** (University of Pennsylvania)  
*Metamaterials for Taming the Light: Metatronics at the Nanoscale*
- 10:30–11:00 *Break*
- 11:00–11:50 **Ronald Hoppe** (University of Houston)  
*Mathematical Modeling, Numerical Simulation and Optimization of Surface Acoustic Wave Driven Micro<sup>o</sup>uidic Biochips*
- 12:00–1:30 *Lunch (on your own)*
- 1:30–2:20 **Roberto Merlin** (University of Michigan)  
*High Frequency Magnetism in Metamaterials and the Landau-Lifshitz Permeability Argument*
- 2:30–2:45 *Break*

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- 2:45–3:35     **Maria Kafesaki** (Foundation for Research and Technology, Hellas (FORTH))  
*Magnetic response of nanoscale left-handed metamaterials*
- 3:45–4:00     *Break*
- 4:00–4:50     **Ben Schweizer** (Universität Dortmund)  
*Some rigorous results on split ring resonators and cloaking by anomalous localized resonance*

### Wednesday January 27, 2010

- 8:30–9:30     *Continental Breakfast*
- 9:30–10:20    **Shanhui Fan** (Stanford University)  
*Theory and novel classes of meta-materials*
- 10:30–11:00   *Break*
- 11:00–11:50   **Graeme Milton** (University of Utah)  
*Realizability of metamaterials with prescribed electric permittivity and magnetic permeability tensors*
- 12:00–1:30    *Lunch (on your own)*
- 1:30–2:20     **Christophe Caloz** (University of Montreal)  
*Some Novel Directions in Metamaterial Engineering*
- 2:30–3:00     *Break*
- 3:00–3:50     **Sebastien Guenneau** (University of Liverpool)  
*Acoustic cloaks for surface waves*

### Thursday January 28, 2010

- 8:30–9:30     *Continental Breakfast*
- 9:30–10:20    **Tatsuo Itoh** (University of California, Los Angeles (UCLA))  
*Advances of Composite Right/Left Handed Structures for Microwave Applications*
- 10:30–11:00   *Break*
- 11:00–11:50   **Wei Cai** (University of North Carolina Charlotte)  
*High order and Multi-physics Numerical Methods for surface plasmon polaritons*
- 12:00–1:30    *Lunch (on your own)*
- 1:30–2:20     **Valery Smyshlyaev** (University of Bath)  
*Homogenization with partially high contrasts: non-standard effects and non-classical analysis*
- 2:30–2:45     *Break*

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- 2:45–3:35 **Pierre Seppecher** (Université de Toulon et du Var)  
*Some homogenization results for viscoelastic bodies at fixed frequency.*
- 3:45–4:00 *Break*
- 4:00–4:50 **Richard Ziolkowski** (University of Arizona)  
*A Practical View of Metamaterial-engineered Radiating and Scattering Systems*

## Friday January 29, 2010

- 8:30–9:30 *Continental Breakfast*
- 9:30–10:20 **Vitaliy Lomakin** (University of California, San Diego (UCSD))  
*Hardware accelerated fast integral equation solvers and the study of optical waves in compound nanoparticle arrays*
- 10:30–11:00 *Break*
- 11:00–11:50 **Natasha Litchinitser** (SUNY Buffalo)  
*Metamaterials: From Linear to Nonlinear Optics*
- 12:00–1:30 *Lunch (on your own)*
- 1:30–2:20 **Peter Monk** (University of Delaware)  
*The Interior Transmission Problem in Acoustics and Electromagnetics*
- 2:30–2:45 *Break*
- 2:45–3:35 **Arthur Yaghjian** (Hanscom Air Force Base)  
*Discrepancy between Group and Energy-Transport Velocities in Spherical Electromagnetic Cloaks*

