



www.mrs.org/meetings/spring2006/ CALL FOR PAPERS

ABSTRACT DEADLINE: NOVEMBER 1, 2005

REMINDER: In fairness to all potential authors,
late abstracts will not be accepted.

MRS Symposium J: Negative Index Materials—From Microwave to Optical

The idea of *negative refractive index* was analyzed over 30 years ago by Victor G. Veselago. This remained a mathematical curiosity until, in the year 2000, David R. Smith fabricated and demonstrated for the first time a material exhibiting negative index of refraction at microwave frequencies. The scientific breakthrough has brought tremendous momentum to this field of research. The properties of negative refractive index materials are now the subject of numerous investigations over a broad spectrum range, from microwave to optical frequencies. This symposium will bring together key scientists and research teams from all around the world to exchange ideas and discuss the fascinating physics of negative index materials. Together they will assess the state of the art of this new and fascinating domain of research and brainstorm on fabrication and implementation of negative index materials in practical devices.

Topics addressed in this symposium will include, but not be limited to:

Theory and New Physics

- Encompass both left-handed material (negative μ and ϵ) and periodic structure-mediated negative refractive effect
- Anomalous Doppler effect, tunneling time, and lateral displacement
- The role of chirality in NIM
- Loss and dispersion

Novel Fabrication Techniques

- The path to high-frequency (THz to Optical) NIMs
- Left-handed material-based assemblies and systems
- Periodic structure-based assemblies and systems
- Postprocessing: annealing, polishing, laser smoothing, and wavelength tuning

Development of Characterization Methodology

- Structural and electronic/microwave/optical properties, defects, impurities, metastability

Device and Applications

- Subwavelength imaging
- Innovative applications incorporating negative index material and integration with conventional devices and circuits

The symposium is being planned for four to six half-day sessions of oral presentations and two evening poster sessions. A joint session is anticipated with Symposium K: *Materials Research for THz Applications*, and possibly other symposia.

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in January.

Invited speakers include: **Valerie Browning** (DARPA), **Christophe Caloz** (Ecole Polytechnique, Canada), **George V. Eleftheriades** (Univ. of Toronto, Canada), **Nader Engheta** (Univ. of Pennsylvania), **Duncan M. Haldane** (Princeton Univ.), **Sailing He** (Zhejiang Univ., China), **Tatsuo Itoh** (Univ. of California-Los Angeles), **Ekmel Ozbay** (Bilkent Univ., Turkey), **Min Qiu** (Royal Inst. of Technology, Sweden), **Vladimir Shalaev** (Purdue Univ.), **Gennady Shvets** (Univ. of Texas-Austin), **David R. Smith** (Duke Univ.), **Costas M. Soukoulis** (FORTH, Greece, and AMES), **Victor G. Veselago** (Moscow Inst. of Physics and Technology, Russia), and **Xiang Zhang** (Univ. of California-Berkeley).

Symposium Organizers

Shih-Yuan (SY) Wang

Hewlett-Packard Laboratories, Quantum Science Research, MS 1123
1501 Page Mill Rd., Palo Alto, CA 94304-1100
Tel 650-857-3111, Fax 650-813-3312, sywang@hp.com

Nicholas Xuanlai Fang

University of Illinois, Urbana-Champaign
Dept. of Mechanical & Industrial Engineering,
MC-244, 158 Mechanical Engineering Bldg., 1206 W. Green St., Urbana, IL 61801
Tel 217-265-8262, Fax 217-244-6534, nicfang@uiuc.edu

Lars Thylen

Royal Institute of Technology (KTH)
Dept. of Microelectronics & Information Technology, S-164 40 Stockholm, Sweden
Tel 46-8-7904050, Fax 46-8-7904090, lthylen@imit.kth.se

M. Saif Islam

University of California-Davis, Dept. of Electrical & Computer Engineering
3139 Kemper Hall, Davis, CA 95616-5294
Tel 530-754-6732, Fax 530-752-8428, saif@ece.ucdavis.edu

For additional meeting information, visit the MRS Web site at www.mrs.org/meetings/ or contact:



Member Services

Materials Research Society

506 Keystone Drive, Warrendale, PA 15086-7573 • Tel 724-779-3003 • Fax 724-779-8313 • info@mrs.org