

# PECS-VII: International Symposium on Photonic and Electromagnetic Crystal Structures

Conference Program  
April 8-11, 2007  
Portola Plaza Hotel  
Monterey, California, U.S.A.

All sessions will be held in the Monterey Conference Center, next to the Portola Plaza Hotel, in the Steinbeck Forum. The **Invited** Talks will have 25 minutes for presentation and 5 minutes for discussion. The **Contributed** Talks will have 10 minutes for presentation and 5 minutes for discussion. The Poster Sessions will be displayed in the De Anza III in the Portola Plaza Hotel. We will present awards for the best three posters during the conference dinner, Tuesday, April 10.

## Sunday, April 8, 2007

1:00-4:30 p.m.	Early Registration
5:00-6:00 p.m.	Dinner
6:00-8:00 p.m.	Early Registration
8:00-10:00 p.m.	Conference Reception

## Monday, April 9, 2007

- 7:30 Registration  
8:15 Welcome—David Smith & Costas Soukoulis

### Morning Session—Chair: Costas M. Soukoulis

- 8:30 **Invited:** Sajeev John, University of Toronto—*Photonic band gap materials: Engineering light-matter interactions*  
9:00 **Invited:** Thomas Krauss, University of St. Andrews—*Slow light in photonic crystal waveguides: Loss and dispersion issues*  
9:30 **Invited:** Masaya Notomi, NTT Basic Research Laboratories—*All-optical control of light in ultrahigh-Q photonic crystal cavities*  
10:00 **Contributed:** Yoshinori Kitagawa, University of Tsukuba—*High-transmission recovery in slow-light-range in photonic crystal waveguide using hetero group-velocity waveguide*  
10:15 Coffee Break

### Morning Session—Chair: Philip Russell

- 10:45 **Invited:** Eli Yablonovitch, University of California—Los Angeles—*The design of components for silicon integrated nano-photonics*  
11:15 **Invited:** Toshihiko Baba, Yokohama National University—*Progress of photonic crystal slab devices*  
11:45 **Invited:** Evelyn Hu, University of California—Santa Barbara—*Quantum Dots in Photonic Crystal Cavities: Tuning, 'Self-Tuning' and Strong Coupling*  
12:15 Lunch

### Afternoon Session—Chair: Jean Pol Vigneron

- 1:30 **Invited:** Susumu Noda, Kyoto University—*Recent progress in semiconductor photonic crystals—Ultrahigh-Q nanocavities and 2D band-edge lasers*  
2:00 **Invited:** L. (Kobus) Kuipers, FOM Institute for Atomic and Molecular Physics—*Ultrafast dynamics in nanophotonic structures tracked in real space and in k-space*  
2:30 **Contributed:** Martin Kamp, Universität Würzburg—*Group delay measurements of photonic crystal cavities*  
2:45 **Contributed:** Antonio Badolato, Institute of Quantum Electronics —*Sustaining mechanism of photonic crystal cavity modes coupled to single quantum dots*  
3:00 Short Break

### Afternoon Session—Chair: Sajeev John

- 3:15 **Contributed:** Kurt Busch, Universität Karlsruhe—*Efficient modeling of photonic nanostructures using Krylov-subspace methods*  
3:30 **Contributed:** Kazuaki Sakoda, National Institute for Materials Science —*Superfluorescence in photonic crystals studied by first-principle calculation*  
3:45 **Invited:** Henri Benisty, Centre Scientifique Polytechnique—*Fine mechanisms in photonic crystal multimode waveguide demux*  
4:15 **Invited:** Shi-Ning Zhu, Nanjing University—*Engineering ferroelectric domain for nonlinear photonics*  
4:45 **Invited:** Shanhui Fan, Stanford University—*Strong correlated multi-photon transport in photonic crystal waveguide coupled to a two-level system*  
5:15 Dinner

### 8:00–10:00 Poster Session A—De Anza III, Portola Plaza Hotel

## Tuesday, April 10, 2007

### Morning Session—Chair: Eli Yablonovitch

- 8:30 Plenary Talk: Philip Russell, University of Erlangen-Nuremberg—*Recent developments in photonic crystal fibres (PCFs)*
- 9:15 **Invited:** Ben Eggleton, University of Sydney—All-optical control in chalcogenide microphotonic devices
- 9:45 **Contributed:** Ali Adibi, Georgia Institute of Technology—*Compact integrated optical demultiplexers and spectrometers enabled by dispersion engineering in photonic crystals*
- 10:00 **Contributed:** Ralf Wehrspohn, Fraunhofer-Institut für Werkstoffmechanik — *Miniature infrared gas sensors using photonic crystals*
- 10:15 Coffee Break

### Morning Session—Chair: Cefe Lopéz

- 10:45 **Contributed:** Paul Braun, University of Illinois—*Fabrication and characterization of embedded defects in silicon colloidal photonic crystals*
- 11:00 **Contributed:** Hernán Miguez, Instituto de Ciencia de Materiales de Sevilla—*Full processing of colloidal photonic crystals by spin-coating*
- 11:15 **Contributed:** Jean Pol Vigneron, Facultés Universitaires Notre-Dame de la Paix—*Reversible natural reflectance switching mechanisms in Panamean Tortoise beetles*
- 11:30 **Contributed:** Ihab El-Kady, Sandia National Laboratories—*Modeling of micromachined acoustic bandgap structures and devices*
- 11:45 **Contributed:** Ganish Subramania, Sandia National Laboratories —*Omnidirectional photonic crystals for visible light control*
- 12:00 **Contributed:** Ying Wu, Hong Kong University of Science and Technology—*Effective medium theory for elastic composites: Beyond the quasi-static limit*
- 12:15 Lunch

### Afternoon Session—Chair: David R. Smith

- 1:30 **Invited:** John Pendry, Imperial College —*Cloaking static magnetic fields*
- 2:00 **Invited:** Stefan Linden, Institut für Nanotechnologie —*Photonic metamaterials: Artificial magnetism, negative refractive index, and circular dichroism at optical frequencies*
- 2:30 **Invited:** Gennady Shvets, The University of Texas—Austin —*Guiding, focusing, and sensing on the sub-wavelength scale using metallic wire arrays*
- 3:00 Short Break

### Afternoon Session—Chair: Ekmel Ozbay

- 3:15 **Invited:** Francisco Garcia-Vidal, Universidad Autónoma de Madrid—*Guiding and focusing light at THz frequencies by using a plasmonic metawire*
- 3:45 **Contributed:** Peter Catrysse, Stanford University—*Strong interplay between transmission pathways in subwavelength hole arrays in phonon-polaritonic thin films*
- 4:00 **Contributed:** Virginie Lousse, Namur University—*Conditions for designing single-mode air-core waveguides in three-dimensional photonic crystals*
- 4:15 **Contributed:** Zhi-Chao Ruan, Royal Institute of Technology (KTH)—*Some applications of designed surface plasmons in periodically structured metal surface*
- 4:30 **Contributed:** Ting Shan Luk, Sandia National Laboratories—*Direct density-of-states measurements of 3D photonic crystals*
- 4:45 **Contributed:** Marian Florescu, California Institute of Technology—*Thermal radiation in photonic crystals*

### 5:00–7:00 Poster Session B—De Anza III, Portola Plaza Hotel

- 7:15 Conference Dinner

## Wednesday, April 11, 2007

Morning Session—Chair: Che T. Chan

- 8:30 **Invited:** Ekmel Ozbay, Bilkent University—*Negative refraction and subwavelength focusing using left-handed composite metamaterials*
- 9:00 **Contributed:** Ross McPhedran, University of Sydney—*Electromagnetic cloaking through plasmonic resonance*
- 9:15 **Contributed:** Wenshan Cai, Birck Nanotechnology Center—*Optical metamaterials: From rainbow magnetism to negative-index and cloaking*
- 9:30 **Contributed:** Willie Padilla, Boston College—*Terahertz frequency metamaterial devices*
- 9:45 **Contributed:** Steven Morrison, Australian National University—*Nonlinear Tamm states in photonic crystals*
- 10:00 **Contributed:** Hiroyuki Takeda, University of Toronto—*Localized light orbitals: Basis states for photonic crystal microcircuits*
- 10:15 Coffee Break

Morning Session—Chair: Stefan Linden

- 10:45 **Invited:** Oliver Martin, Swiss Federal Institute of Technology Lausanne—*Engineering field enhancement and radiative decay in plasmonic antennas*
- 11:15 **Contributed:** Alexandru Cabuz, University of Montpellier II—*Just how homogeneous are negative index composites?*
- 11:30 **Contributed:** Silvia Vignolini, LENS and INFN-Matis—*Rewritable light sources in a photonic crystal cavity*
- 11:45 **Invited:** David Smith, Duke University—*Electromagnetic Wave Cloaking with Metamaterials*

12:15 Concluding Remarks