

Meeting Schedule

WEDNESDAY May 20, 2009			
8:30 – 9:00 AM	Registration and Breakfast		
9:00 – 10:15 AM	Plenary Session: Bernie Meyerson Poster Highlights (36-428)		
10:15 – 10:30 AM	Break		
10:30 – 12:30 AM	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Silicon Photonics (34-401)</td> <td style="text-align: center;">Advanced Emitters (36-428)</td> </tr> </table>	Silicon Photonics (34-401)	Advanced Emitters (36-428)
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12:30 – 1:30 PM	Lunch		
1:30 – 2:30 PM	Poster Session (36-401B)		
2:30 – 5:30 PM	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Silicon Photonics (34-401A)</td> <td style="text-align: center;">Fiber to the Home (36-428)</td> </tr> </table>	Silicon Photonics (34-401A)	Fiber to the Home (36-428)
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6:00 PM	Reception		

THURSDAY May 21, 2009			
8:30 – 9:00 AM	Registration and Breakfast		
9:00 – 10:15 AM	Plenary Session: Bob Byer Poster Highlights (36-428)		
10:15 – 10:30 AM	Break		
10:30 – 12:30 AM	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">Integrated Multimaterial Fibers (34-401)</td> <td style="text-align: center;">Ultrafast Photonics (36-428)</td> </tr> </table>	Integrated Multimaterial Fibers (34-401)	Ultrafast Photonics (36-428)
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ADVANCE PROGRAM | MAY 20-21, 2009

The overall focus of the annual meeting is to discuss the opportunities and challenges for integrated photonic components, modules, and subsystems and to have a significant impact on future systems and applications.

PLENARY SESSIONS**Wednesday May 20, 2009**

9:00 – 10:15 AM	PLENARY SESSION I – RAJEEV RAM, CHAIR	Rm: 36-428
9:00 – 9:15 AM	Welcome Rajeev Ram, Director, MIT Center for Integrated Photonic Systems	
9:15 – 10:00 AM	Innovation in Microelectronics and Integrated Photonics Dr. Bernie Meyerson <i>IBM Fellow, VP for Strategic Alliances & CTO, IBM Systems & Technology Group</i>	
10:00 – 10:15 AM	Poster Highlights	

Thursday May 21, 2009

9:00 – 10:15 AM	PLENARY SESSION II – FRED LEONBERGER, CHAIR	Rm: 36-428
9:00 – 9:15 AM	Introduction Rajeev Ram, Director, MIT Center for Integrated Photonic Systems	
9:15 – 10:00 AM	Advances in Solid State Lasers and their Applications Professor Bob Byer <i>Professor, Stanford University; Co-Director, Stanford Photonics Research Center</i>	
10:00 – 10:15 AM	Poster Highlights	

POSTER SESSIONS

WEDNESDAY MAY 20, 2009		
1:30 – 2:30 PM	POSTER SESSION I	Rm: 34-401B
THURSDAY MAY 21, 2009		
1:30 – 2:30 PM	POSTER SESSION II	Rm: 34-401B

Each poster session will feature current research presented by MIT graduate students coinciding with the poster presentations that follow the plenary talks.

TOPICAL SESSIONS**ADVANCE PROGRAM | WEDNESDAY, MAY 20, 2009 - AM SESSIONS****10:30 – 12:30 PM SILICON PHOTONICS - CHAIR: MILOS POPOVIC RM: 34-401A**

Advances in materials and devices, especially modulators, waveguides and detectors, and in optical circuit integration will be highlighted. Applications to interconnects, data communications, and signal processing will be discussed.

- 10:30 – 10:45 AM **Introduction**
Milos Popovic, MIT
- 10:45 – 11:20 AM *Keynote: Microphotonic Circuits, Sensors, and Networks*
Michael R. Watts, Sandia National Labs
- 11:20 – 11:35 AM **Nanofabrication of Electronic Photonic Integrated Circuits**
Charles Holzwarth III, MIT
- 11:35 – 11:50 AM **Characterization of Photodiodes Fabricated in Selectively Grown Ge-on-Si**
Nicole DiLello, MIT
- 11:50 – 12:05 PM **Compact, Ultrafast Laser in Silicon Compatible Materials**
Hyunil Byun, MIT
- 12:05 – 12:30 PM **Silicon Photonics and Plasmonics for On-Chip Interconnection**
Daisuke Okamoto, NEC Corporation

10:30 – 12:30 PM ADVANCED EMITTERS - CHAIR: RAJEEV RAM RM: 36-428

This session will investigate a variety of advanced semiconductor laser sources. Devices to be highlighted include quantum dot lasers and amplifiers, external-cavity sources, and high-power SOAs. Presentations will include material on epi materials, devices and applications.

- 10:30 – 10:45 AM **Introduction**
Rajeev Ram, MIT
- 10:45 – 11:10 AM **A Single Comb Laser for WDM in Interconnects and PONs**
Greg Wojcik, Innolume
- 11:10 – 11:35 AM **Quantum Dot Semiconductor Optical Amplifiers**
Massimo De Vittorio, National Nanotechnology Laboratory of CNR-INFM, Italian Institute of Technology (IIT)
- 11:35 – 12:00 PM **Macrophotonics: Why Smaller Isn't Always Better**
Paul Juodawlkis, MIT Lincoln Lab
- 12:00 – 12:25 PM **Narrow line, Low-noise Laser Diodes and Their Applications**
Lew Stolpner, Redfern Integrated Optics

ADVANCE PROGRAM | WEDNESDAY, MAY 20, 2009 - PM SESSIONS**2:30 – 5:00 PM****SILICON PHOTONICS – CHAIR: VLADIMIR STOJANOVIC****RM 34-401A**

Advances in materials and devices, especially modulators, waveguides and detectors, and in optical circuit integration will be highlighted. Applications to interconnects, data communications, and signal processing will be discussed.

- 2:30 – 2:40 PM **Introduction**
Vladimir Stojanovic, MIT
- 2:45 – 3:20 PM *Keynote: Silicon Photonics: From Research to Manufacturable Products*
Roel Baets, Intec University of Ghent
- 3:20 – 3:40 PM **CMOS Photonics**
Jason Orcutt, MIT
- 3:40 – 4:00 PM **Electronic Photonic Analog to Digital Converters**
Anatoly Khilo, MIT
- 4:00 – 4:20 PM **Silicon-Photonic Clos Networks for Global On-Chip Communication**
Ajay Joshi, MIT
- 4:20 – 4:40 PM **Designing Multi-socket Systems Using Silicon Photonics**
Scott Beamer, UC Berkeley

2:30 – 5:35 PM**OPTICAL BROADBAND FTTx - CHAIR: FRED LEONBERGER****RM 36-428**

The session will focus on the key technology alternatives for advanced broadband access. It will highlight both WDM PON and 10GPON components and architectures, and will also address content and traffic issues related to next-generation networks.

- 2:30 – 2:40 PM **Introduction**
Fred Leonberger, MIT
- 2:40 – 3:15 PM **Optical Flow Switching**
Vincent Chan, MIT
- 3:15 – 3:50 PM **Advanced PON Technologies**
Peter Vetter, Alcatel-Lucent Bell Labs
- 3:50 – 4:20 PM **WDM PON**
James Goodchild, LG/Nortel
- 4:20 – 4:55 PM **PON Burst-Mode Receivers and FEC**
David Plant, McGill University
- 4:55 – 5:30 PM **10GPON Electronics**
Martin Nuss, Vitesse

ADVANCE PROGRAM | THURSDAY, MAY 21 - AM SESSIONS**10:30 – 12:30 PM INTEGRATED MULTIMATERIAL FIBERS – CHAIRS: YOEL FINK/OFER SHAPIRA
RM 34-401A**

The session will focus on recent advances in photonic and electronic integration in optical fibers composed of multi-materials. Emphasis will be on materials, devices, and applications.

- 10:30 – 10:45 AM **Introduction**
Yoel FinK, MIT
- 10:45 – 11:10 AM **Optoelectronic Fibers**
Ofer Shapira, MIT
- 11:10 – 11:35 AM **Applications of Electrically Controlled Silicate Fibers**
Walter Margulis, Acreo
- 11:35 – 12:00 AM **Multi-material Multi-function Fibers**
Zheng Wang, MIT
- 12:00 – 12:25 PM **Fiber-Based Organic Solar Cells and LEDs**
Max Shtein, University of Michigan

10:30 – 12:30 PM ULTRAFAST PHOTONICS – CHAIR: ERICH IPPEN RM 36-428

The session will focus on the science and applications of intense ultrafast light sources. A broad range of technologies and applications will be discussed, including sources for communication systems and medical instrumentation.

- 10:30 – 10:45 AM **Introduction**
Erich Ippen, MIT
- 10:45 – 11:10 AM **Femtosecond Frequency Combs and Optical Clocks**
Andrew Benedick, MIT
- 11:10 – 11:35 AM **LiNbO3 Waveguides for THz Polaritonics, Coherent Control, & Signal Processing**
Christopher A. Werley, MIT
- 11:35 – 12:00 AM **The Electrodynamics of Terahertz Metamaterials**
Rick Averitt, Boston University
- 12:00 – 12:25 PM **From Soft Glass Photonic Crystal Fibers to Silk Photonics**
Fiorenzo Omenetto, Tufts University

ADVANCE PROGRAM | THURSDAY, MAY 21 - PM SESSIONS**2:30 – 4:30 PM****PORTABLE PHOTONICS - CHAIR: FRED LEONBERGER****RM 34-401A**

Key photonic technologies for mobile applications will be discussed. These include microprojectors, displays and backlighting. One emphasis will be on the progress and role of organic semiconductors.

- 2:30 – 2:40 PM **Introduction**
Fred Leonberger, MIT
- 2:40 – 3:05 PM **Camera Culture**
Ramesh Raskar, MIT
- 3:05 – 3:30 PM **Microdisplays**
Dave Loeber, Corning
- 3:30 – 3:55 PM **Portable Projectors Hit the Mainstream**
Stephane Bellosguardo, Luminus Devices
- 3:55 – 4:20 PM **Electroluminescence of Printed Quantum Dot Films**
Vladimir Bulovic, MIT

2:30 – 5:30 PM**MEDICAL PHOTONICS - CHAIR: RAJEEV RAM****RM 36-428**

This session will explore the application of photonic devices to various problems in biosensing and medical diagnostics. While an overview of the various applications will be provided, the session will focus on the role of photonics in the process of drug discovery and manufacturing.

- 2:30 – 2:40 PM **Introduction**
Rajeev Ram, MIT
- 2:40 – 3:05 PM **Optical Coherence Tomography in Cardiology: Bench to Bedside**
Ik-kyung Jang, Massachusetts General Hospital
- 3:05 – 3:30 PM **On-Chip Femtosecond Laser Neurosurgery for In Vivo Drug Screening**
Mehmet Yanik, MIT
- 3:30 – 3:55 PM **Optical Activation of Neurons**
Ed Boyden, MIT
- 3:55 – 4:20 PM **CO₂-laser Surgery Utilizing Photonic-Bandgap IR Fiber**
Tairan Wang, OmniGuide