

The 2010 International Symposium on Optoelectronic Materials and Devices

*Marriott Downtown Magnificent Mile Hotel
July 12 – July 13 2010
Chicago - IL, USA*



Chicago Marriott Downtown Magnificent Mile Hotel



Chicago—Buckingham Fountain

The goal of this symposium is to offer a venue for discussions and the exchange of ideas on the areas of **solar photovoltaics, infrared photovoltaics and light emitting diodes (LEDs)**. The common foundation of these three subjects yet often disparate R&D efforts motivates this symposium, which aims to bring together associates who otherwise may not interact.

The symposium will provide a well organized international forum to review and discuss recent progress and future trends in the rapidly advancing field of photonic materials and devices. The symposium will cover a broad range of physics and application such as emerging trends in solar energy, infrared detection, solid state lighting, and related quantum functional materials and devices.



This symposium has been jointly organized by Quantum-functional Semiconductor Research Center (QSRC) of Dongguk University, EPIR Technologies Inc., Sivananthan Laboratories Inc. and Microphysics Laboratory (MPL) of the University of Illinois at Chicago. It is 7th in series and was formerly known as the "International Symposium on Quantum Functional Systems". QSRC and MPL partner on various research areas and their partnership contributes to the training of many undergraduate and graduate students in the area of Applied Physics.

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Day 1			Monday July 12 2010 - Marriott Downtown Magnificent Mile		
8:00-8:15	Welcoming & Opening Remarks		Yesim Anter, EPIR Technologies Inc, Tae Won Kang, Dongguk University		
Session Topic: <i>Plenary Solar Session</i>			<i>Session 1 - 1 hour 30 minutes</i>		
Session Chair: Siva Sivananthan, University of Illinois at Chicago					
Time	Speaker		Title		
8:15-8:20	Siva Sivananthan, University of Illinois at Chicago				
1 8:20-9:00	Minh Le, U.S. Department of Energy - Solar Energy Technologies Program		Solar Energy Technologies Program at the US Department of Energy: Technology and Manufacturing Challenges for the US PV Industry		
9:00-9:05	Siva Sivananthan, University of Illinois at Chicago				
2 9:05-9:45	Martha Symko-Davies, National Renewable Energy Laboratory.		Commercialization Potential in the U.S though the PV Technology Incubator Program		
9:45-10:15 AM Break: 30 mins					
Session Topic: <i>Solar - I</i>			<i>Session 2 - 1 hour 30 minutes</i>		
Session Chair: Angelo S. Gilmore, EPIR Technologies Inc.					
3 10:15-10:45	Masafumi Yamaguchi, Toyota Technological Institute		Recent Progress in Super High Efficiency III-V Multi-Junction Solar Cells and Materials		
4 10:45-11:15	Michael Carmody, EPIR Technologies Inc.		Single-Crystal II-VI on Si Single-junction and Tandem Solar Cells		
5 11:15-11:45	Gregory Nielson, Sandia National Laboratories		"Glitter" Solar Cells: Taking Advantage of Length-Scale Benefits for Solar Power		
11:45-12:00 Symposium Group Picture					
12:00-1:30 Lunch: 1 hr 30 mins					
Session Topic: <i>IR - I</i>			<i>Session 3 - 1 hour 30 minutes</i>		
Session Chair: Gail Brown, U.S. Air Force Research Laboratory, Materials & Manufacturing Directorate					
6 1:30-2:00	Nibir Dhar, DARPA/MTO		Advanced Technology: Infrared detectors and Energy sources		
7 2:00-2:30	Unil Parera, Georgia State University		UV to Terahertz Detector Development		
8 2:30-3:00	Raldolph Jacobs, U.S. Army RDECOM CERDEC, Night Vision and Electronic Sensors Directorate		Status of low-cost composite substrates for HgCdTe heteroepitaxy		
3:00-3:30 PM Break 30 mins					
Session Topic: <i>Solar - II</i>			<i>Session 4 - 1 hour 30 minutes</i>		
Session Chair: Nibir Dhar, DARPA/MTO					
9 3:30-4:00	Timothy Anderson, University of Florida/FESC		Reaction Pathways in the Formation of CIGS Absorber Layers and GaN Active Layers		
10 4:00-4:30	Andreas Waag, Braunschweig University of Technology		Wide Band Gap Nanostructures for Energy Saving and Energy Harvesting		
11 4:30-5:00	Neelkanth Dhere, University of Florida/FESC		Important Aspects in Study of Reliability of PV Cells and Modules		

6:30 pm—9:30 pm : Symposium Dinner with Live Music

“The Signature Room at the 95th” at the John Hancock Tower

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Day 2		Tuesday July 13 2010 - Marriott Downtown Magnificent Mile	
Session Topic:		IR - II	Session 5 - 1 hour 30 minutes
Session Chair: Christoph Grein, Sivananthan Laboratories Inc.			
Time	Speaker	Title	
12 8:00-8:30	Gail Brown, U.S. Air Force Research Laboratory, Materials & Manufacturing Directorate	InAs/GaSb Superlattice Materials Improvements for Infrared Detectors	
13 8:30-9:00	Sanjay Krishna, University of New Mexico	Unipolar Barrier Engineered Superlattice Detectors	
14 9:00-9:30	Michael Flatté, University of Iowa	Modeling Defects in Long-Wavelength Infrared Type-II Strained-Layer Superlattices	
9:30-10:00 AM Break: 30 mins			
Session Topic:		Solar - III	Session 6 - 2 hours
Session Chair: Masafumi Yamaguchi, Toyota Technological Institute			
15 10:00-10:30	Tim Gessert, National Renewable Energy Laboratory	Review of Photovoltaic Energy Production Using Thin Film Modules	
16 10:30-11:00	Allen Barnett, University of Delaware	High Efficiency, Spectrum Splitting Solar Cell Module	
17 11:00-11:30	Alvin Compaan, University of Toledo	Polycrystalline CdTe Photovoltaics: extending the Te supply with ultra-thin absorber layers	
18 11:30-12:00	Yong-Hang Zhang, Arizona State University	Monolithic integration of II-VI/III-V semiconductors on 6.1 Å substrate for optoelectronic device applications	
12:00 - 1:30 Lunch: 1 hr 30 mins			
Session Topic:		Solar - IV	Session 7 - 2 hours
Session Chair: Tim Gessert, National Renewable Energy Laboratory			
19 1:30-2:00	Matthew Law, University of California, Irvine	Solution-processed Inorganic Photovoltaics from Semiconductor Nanocrystals	
20 2:00-2:30	David Mitzi, IBM T. J. Watson Research Center	Solution-Processing of High Performance Cu-Zn-Sn-S/Se Solar Cells	
21 2:30-3:00	Ashok Sood, Magnolia Solar Inc.	Nanostructure-based Thin Film Solar Cells	
22 3:00-3:30	Gyu Chul-Yi, Seoul National University	Position-controlled ZnO nanorod/tube heterostructures for LED and solar cell applications	
3:30-4:00 PM Break 30 mins			
Session Topic:		IR - III	Session 8 - 1 hour 00 minutes
Session Chair: Andreas Waag, Braunschweig University of Technology			
23 4:00-4:30	Kazuhito Yasuda, Nagoya Institute of Technology	Hetero-epitaxial growth and doping properties of CdTe layers by metalorganic vapor phase epitaxy	
24 4:30-5:00	Siddhartha Ghosh, University of Illinois at	Impact Ionization Engineered MWIR Avalanche Pho-	

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Venue:

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www.chicagomarriottdowntown.com

540 North Michigan Avenue, (Driveway Entrance on 541 North Rush Street)

Chicago, Illinois 60611 USA Phone: 1-312-836-0100, Fax: 1-312-836-6139

Symposium Social Dinner:

Monday July 12 2010 6:30 pm

The Signature Room at the 95th®

875 N. Michigan Ave.

Chicago, IL 60611

Phone: 312.787.9596

<http://www.signatureroom.com/>

Symposium Cochairs:

Timothy J. Coutts, Ph.D. Emeritus Research Fellow, National Renewable Energy Laboratory, USA

Christoph H. Grein, Ph.D. Transitional President, Sivananthan Laboratories Inc., USA

Tae Won Kang, Ph.D. Professor of Physics and Director, Quantum Functional Semiconductor Research Center, Dongguk University, S. Korea

Sivalingam Sivananthan, Ph.D. College of Liberal Arts and Sciences Distinguished Professor, Director of Microphysics Laboratory, University of Illinois at Chicago, USA

Organizing Committee:

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This symposium is sponsored by EPIR Technologies Inc.



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