

**Participating
Schools**

University of Connecticut
Trinity College
Yale University
University of Bridgeport
Southern Connecticut State
University

**Participating
Corporations**

United Technologies
Research Center
Pitney Bowes
Advanced Technology
Materials (ATMI)
General Dynamics
Goodrich Aerospace
Anderson Labs Phonon
Corporation
Ensign Bickford
Perkin Elmer
Sunstrand
Photonics
TranSwitch Corporation
Coherent-DEOS
JDS-Uniphase
C-Cor
ASML
Jetek, LLC



Connecticut Symposium on Microelectronics & Optoelectronics

NINETEENTH ANNUAL SYMPOSIUM: Micro-and Nano-technologies for Electronics & Photonics

**University of Connecticut
Thomas J. Dodd Center Storrs, CT 06269**

April 7, 2010

Sponsored by The Connecticut Microelectronics & Optoelectronics Consortium, IEEE-LEOS and SPIE Chapters, University of Connecticut's Academic Partnerships & Special Programs Unit, IEEE CT-Chapter, CRISP (NSF Materials Research Science and Engineering Center) and the Yale Center for Microelectronic Materials and Structures.

Invited Talks

- **Graphene Electronics**, C.Y. Sung, IBM T.J. Watson Research Center, NY.
- **Promises and challenges in solid state lighting**, E. Fred Schubert, RPI, Troy, NY
- **High Performance Multiplexed-Scaled down field enabled systems**, Luis Fernando Velasquez-Garcia, MIT.
- **Thin film electronics for hybrid integration**, Ioannis (John) Kymissis, Columbia U.

See page 2 for other invited talks.

- **Technical Sessions: Papers on Materials, Devices, Technologies, and Applications**
- **Network with internationally renowned experts and learn about the R & D activities in micro- and nano-technologies.**
- **Discover R&D resources available in Connecticut.**

Late news poster papers will be accepted until April 5th, 2010.

Email your abstract as .doc/.pdf to Prof. D. Ahlgren

CMOC Home Page: <http://www.engr.uconn.edu/ece/lbs/microlab/cmoc.html>

**Connecticut
Microelectronics
&
Optoelectronics
Consortium**

The principal purpose of the Sixteenth Connecticut Symposium on Microelectronics and Optoelectronics is to strengthen cooperation and sharing of resources between Connecticut industries and universities in the areas of microelectronics, optoelectronics, and related technologies.

Another goal is to expose Connecticut industries to new technologies, trends, and current issues through invited presentations by nationally and internationally recognized experts.

The symposium will act as a forum to disseminate, to state government leaders and the public at large, information

about current directions and developments in these key areas.

Finally, the symposium will seek to identify resources that encourage cooperative entrepreneurship among Connecticut industries and universities in the areas of microelectronics and optoelectronics.

Connecticut Microelectronics and Optoelectronics Symposium Program

Wednesday April 7, 2010

Morning Session

- 8:15-9:00 Walk-in Registration & Coffee
- 9:00 - 9:15 Opening Remarks
- 9:15 - 10:30 Session I: Devices
- 10:30 - 11:15 "Graphene Electronics" by C.Y. Sung, IBM T.J. Watson Research Center, NY
- 11:15 - 12:30 Session II: Materials & Characterization
- 12:30-1:45 Lunch / Poster Session

Afternoon Session

- 1:45 - 2:15 "Promises and challenges in solid state lighting", E. Fred Schubert, RPI
- 2:15-2:30 Coffee Break
- 2:30 - 3:45 Session III: Emerging Technologies
- 3:45 - 5:00 Session IV: Applications
- 5:00 - 6:00 Poster Session

Evening Session

- 6:00 - 7:00 Reception and Awards**

The CMOC is pleased to offer our nineteenth annual symposium developed for professionals including:

- Industrial / Academic R&D Personnel
- Engineering and Science Students
- Research and Application Technologists
- Entrepreneurs in the Micro/Optoelectronics
- Chief Executive Officers/Directors of Engrg.

****Sponsored by IEEE CT Chapter and CRISP (NSF Materials Research Science and Engineering Center).**

Technical Papers (Oral Presentations)

SESSION I: Devices

- **Ferroelectric-Gate FET's for DRAM application and device scaling down**, Xiao Pan, T.P Ma, Yale University
- **Heteroepitaxial Semipolar GaN-based Light-Emitting Diode**, Qian Sun, Yu Zhang,, Benjamin Leung, Christopher Yerino and Jung Han., Yale University.
- **Exciton-dominated Quantum Wire Lasers Exhibiting Temperature Insensitivity of the Threshold Current Density**, W. Huang and F. Jain, US Military Academy &UConn.
- **Accumulated body transistors: 3D simulation and analysis**, M. Akbulut, F. Dirisaglik, H. Silva, and A. Gokirmak, UConn.
- ATMI (TBI)

SESSION II: Materials & Characterization

- **Magnetoelectric Coupling in Composite Multiferroic Heterostructures for Spin-based Logic Applications**, J. Hoffman, C. A. F. Vaz, Y. Segal, J. W. Reiner, F. J. Walker, C. H. Ahn, Z. Zhang, Yale University.
- **Synthesis and Field Emission of Seedless ZnO Nanoneedles on Metals**, Gregory Wrobe, Marcin Piech, Pu-Xian Gao, and Sameh Dardona, UConn and UTRC.
- **Effective work functions of TiC_xN_{1-x} in contact with HfO_2 through *ab initio* simulations**, Hong Zhu and Rampi Ramprasad, UConn
- **Optical gain at >1.3-1.5 micron from GaAs deep-centers**, Janet Pan, Yale (Invited)
- **High-Quality (211)B CdTe on (211) Si Substrates Using Metalorganic Vapor-Phase Epitaxy**, S. Rao, S. Shintri, J. Markunas, R. Jacobs and I. Bhat, RPI, Troy, NY.

SESSION III: Emerging Technologies

- **High Performance Multiplexed-Scaled down field enabled systems**, Luis Fernando Velasquez-Garcia, MIT (Invited)
- **Active Si Nanophotonics**, Hong Tang, Yale University (Invited).
- **Large throughput biomedical instrumentation: patch-clamp arrays and voltage-sensitive dye imaging**, Eugenio Culurciello, Yale University (Invited).
- **Layer-by-Layer (LBL) Assemblies/Poly (Vinyl Alcohol) Hydrogel based Stacked Outer Membranes for Implantable Glucose Sensors**, S. Vaddiraju, I. Tomazos, D. Burgess, F. Jain, and F. Papadimitrakopoulos, Biorasis Inc. and UConn.
- **H. Kosar, Development of Ultra Low Power Electronic Components for Asynchronous Energy Harvesters**, Yale University. (Invited)

SESSION IV: Applications

- **Thin film electronics for hybrid integration**, Ioannis (John) Kymissis, Columbia U. (Invited)
- **Microfluidic device for ultrasensitive multiplexed detection of cancer biomarkers**, Bhaskara V. Chikkaveeraiah, Vigneshwaran Mani, Hongyun Liu, Fotios Papadimitrakopoulos, James F. Rusling, UConn
- **Fabrication and characterization of vertically aligned carbon nanofiber as a biosensor platform**, A. B. Islam, S. Mostafa and S. K. Islam, U. Tennessee, Knoxville, TN.
- **Dealing with Reliability and Variability Issues in Nanometer Technology Designs**, Mohammad Tehranipoor, UConn.
- **Investigation on the Contradictory Gas Sensing Behaviors of Semiconducting ZnO and Zn₂SnO₄ Single Crystalline Nanowires**, Wenjie(Andy) Cai, Pu-Xian Gao, UConn.
- **Critical Layer Thickness and Strain Relaxation in Exponentially-Graded Semiconductor Heterostructures**, B. Bertoli, S. Xhurxhi, D. Sidoti, S. Cheruku, T. Kujofsa, J. Reed, E. N. Suarez, F. C. Jain, and J. E. Ayers, UConn.

Organizing Committee

D. J. Ahlgren, **Trinity College**
J. Han, **Yale University**
C. Broadbridge, **SCSU**
R. Zeitler, **IEEE Connector (Phonon)**
E. Culurciello, **Yale**

S. Grodzinsky, **University of Bridgeport**
E. Murphy, **JDSU**
F. Dimeo, **ATMI**
A. DeMaria, **Coherent-DEOS**
F. Jain, **University of Connecticut**

T. P. Ma, **Yale University**
M. Macari, **TranSwitch**
C. Valerio, **Phonon Corp.**
J. F. Zheng, **ATMI**
R. C. Barker, **Yale University**

REGISTRATION INFORMATION

Fees: The registration fee of \$ 199 (free for graduate and undergraduate students) includes all costs of presentation materials, refreshments, lunch, and reception. **Registration must be received by Monday, April 5th, 2010, in order to ensure a place at the reception.**

Hotel Information: Nathan Hale Inn, 855 Bolton Road, UConn, Storrs, CT 06269. Fax: (860) 427-7850, Phone: (860) 427-7888. **Please make your reservation directly with the hotel.**

Registration:

Fax: (860) 486-0272

Online: Continuingstudies.uconn.edu/conferences

Customer Service: (877) 892-6264 or (860) 486-4905

Symposium Contents: Call F. Jain at (860) 486-3752.

Symposium Logistics: Call the Academic Partnerships & Special Programs at (860) 486-3231.

Symposium Location: **Thomas J. Dodd Center
University of Connecticut
405 Babbidge Road, Storrs, CT 06269**

Local Arrangements: Academic Partnerships & Special Programs at (860) 486-3231.

Symposium Parking : Park in the South Garage Across *from* Gampel Pavilion. Fee for a day is \$6.

General UConn Info: (860) 486-4900

Refunds and Cancellations:

The registration fee is refundable less a \$35 processing fee, prior to the first day of the program. Participant substitutions may be made at any time.

The University of Connecticut supports all federal and state laws that promote equal opportunity and prohibit discrimination. This is a self-supporting program.

Registration Form: (NOT NEEDED BY STUDENTS)

Connecticut Symposium on Microelectronics & Optoelectronics

At University of Connecticut Thomas J. Dodd Center Storrs, CT 06269

April 7, 2010
Schedule # 1025

No. of people to register _____
(Please list additional registrants on a copy of this form)

Fee: \$199

Free for graduate and undergraduate students (Inform Dr. D. Ahlgren by email:dahlgren@Trincoll.edu)

Name (Mr./Mrs./Ms./Dr.) _____

Name to put on Badge _____

Email: _____

Phone (day) _____

Title _____

Organization _____

Company Address: (use home address if not affiliated with a particular company)

Street: _____

City: _____ State: _____ Zip: _____

Phone (morning): _____ (evening): _____

Method of Payment:

1. Credit Card: to pay by credit card
continuingstudies.uconn.edu/conferences
Do not forget to complete your credit card information.
Visa, MasterCard, Discover, Diners International.

2. Secured Fax Registration: (860) 486-0272

3. Check enclosed payable to UConn.

4. Purchase Order # _____

Mail: Complete your registration form, enclose payment in full, mail to: University of Connecticut, Student Services Office, One Bishop Circle, Storrs, CT 06269-4056

Please check ___if you will be attending reception. Remember, registration must be received before March 16th 2007 in order to ensure a place at reception.

IF YOU REQUIRE SPECIAL SERVICES DUE TO A DISABILITY, PLEASE LET US KNOW.

451621
UConn Center for Continuing Studies
Academic Partnerships & Special Programs, One Bishop Circle,
Unit-4056
Storrs, CT 06269-4056

NINETEENTH ANNUAL



Connecticut Symposium on Microelectronics & Optoelectronics

**University of Connecticut
Thomas J. Dodd Center
Storrs, CT 06269**

April 7, 2010