Participating Schools
University of Connecticut

Trinity College

Yale University

University of Bridgeport

Western Connecticut State University

Southern Connecticut State University

University of New Haven

Participating Corporations

Entegris

Anderson Laboratories

Ensign Bickford Aerospace

General Dynamics

Collins Aerospace

Perkin-Elmer

Photronics

Pitney Bowes

United Technologies Research Center

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Connecticut Symposium on Microelectronics & Optoelectronics

34th ANNUAL SYMPOSIUM: Virtual

Nanoelectronics, Nanophotonics, Quantum and Emerging Technologies.

University of Connecticut
Storrs, CT 06269

March 11, 2026

Sponsored by The Connecticut Microelectronics & Optoelectronics Consortium (CMOC), CRISP (SCSU/Yale), SPIE-UConn Chapter, the University of Connecticut's Center for Continuing Studies, and the Yale Center for Microelectronic Materials and Structures.

Invited Keynote Talk

- The Second Quantum Revolution: From Macroscopic Quantum Tunneling to the "Impossible" Computer, Dr. Luigi Frunzio, Yale University.
- Eric Fossum, TBA, Dartmouth, NH.
- Provost Pamir Alpay, QuantumCT
    - Invited Technical Presentations from industrial and academic experts.

Technical Sessions: Oral and Poster presentations on Quantum Materials, Devices, Quantum Computing, Bio-sensing/Nano-Biosystems, and Emerging Technologies.
Discover R&D resources in Connecticut and neighboring states.

Network with internationally renowned experts and learn about the R & D activities applied Nano/Micro/Opto/Bio/Energy/AI applications.

Paper submission link: techsupport.uconn.edu/cmoc-symposium-2026/

WebEx Event link: s.uconn.edu/cmocvirtual

CMOC Website and Information link: techsupport.uconn.edu/cmoc-symposium-2026/

Connecticut Microelectronics & Optoelectronics Consortium

The principal purpose of the 34th Connecticut Symposium on Micro-electronics and Optoelectronics is to strengthen cooperation and sharing of resources between Connecticut industries and universities in the areas of quantum materials, quantum computing, nano-electronics, biosensors, energy and emerging 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 information to state government leaders and the public at large about current directions and developments in these key areas.

Finally, the symposium will seek to identify resources that encourage co- operative entrepreneurship among Connecticut industries and universities in the areas of nano/microelectronics, opto-electronics and other applied technologies.

Connecticut Microelectronics and Optoelectronics Symposium
Program Wednesday March 11, 2026

Morning Session

9:50 – 10:00 Virtual Check-in

10:00 – 10:10 Welcome: President Maric, UConn

10:10 – 10:15 CMOC Mission

10:15 – 10:30 Christine Broadbridge and Pamir Alpay, QuantumCT

10:30 – 11:20 Session I, Quantum Materials

11:20 – 12:00 Keynote I: Luigi Frunzio, From Macroscopic Quantum Tunneling to the 'Impossible' Computer, Yale University

12:00 – 12:40 Keynote II: Eric Fossum, (TBA), Dartmouth Collège

Afternoon Session

12:40 – 1:30 Session II Devices

1:30 – 2:20 Session III Quantum Computing

2:20 – 3:10 Session IV Biosensing/Nano-Biosystems

3:10 – 4:10 Session V Emerging Technologies

4:10 – 4:50 Poster Session

4:50 – 5:00 Closing

PURPOSE: The 34th Symposium is developed for:

- Industrial / Academic R&D Personnel
- Engineering and Science Students
- Research and Application Technologists
- Entrepreneurs in the Nano/Micro/Opto/Bio/AI

SESSION I: Quantum Materials (10:30-11:20am)

Session Chairs: C. Broadbridge and T. Sadowski

- Z. Ge, U. Slahudidin, C. Zhu, B. Zhao, J. Sun, and P-X. Gao, Mesoporous Nanostructured Filtration System for Microplastic Removal from Seawater, UConn (INVITED)
- D. Thompson, F. Bayansal, N. Biyikli, and Y. Lei, Detection of Perfluoroalkyl Substances through the Use of Molecularly Imprinted Surfaces, UConn (INVITED)
- G. Fernando, J. Sauerhoefer, and C. Roychoudhuri, Modeling Photoelectron Current Pulse (PCP) Statistics, UConn (INVITED)
- I. Fratelli, M. E. Giglio, E. Colantoni, C. Martinez-Domingo, P. Martinez-Zaragoza, G. Napolitano, E. Campari, P. Branchini, B. Fraboni, L. Basiricò, L. Tortora, M. Mas-Torrent, and I Kymissis, Role of Interfaces and Trap States in X-Ray Detectors based on Organic Field Effect Transistors, U. Bologna & U. Columbia (INVITED)

BEST PAPER AWARDS will Be Announced

The support of UConn OVPR is gratefully acknowledged for the Best Student Poster Award.

SESSION II: Quantum NanoDevices (12:40-1:30pm)

Session Chairs: T. Sadowski and C. Broadbridge

- W. Zhu, Advancing Nanoscale Devices Using Ferroelectric and Two-Dimensional Materials, U. Illinois (INVITED)
- S. Eisner, GaN Microelectronics for Extreme Temprature and Radiation Environment, Columbia U. (INVITED)
- N. Dutta, Optical Transmission in DataCenters UConn. (INVITED)
- Md. Y. Rahman, S. Singha, F. Makain, Md. M. Hussain, and S. K. Islam, A 1MHz GaN-Based Transformerless Resonant Superimposed Quadratic Converter for 48V-to-Point of Load High-Current AI Power Delivery, U Missouri (INVITED)

SESSION III: Quantum Computing (1:30-2:20pm)

Session Chair: J. Orszak and C. Valerio

- Chao Zhou, Error-Detectable Remote Entanglement between Dual-Rail Superconducting Cavity Modules, Yale University (INVITED)
- K. R. Venkatesan, J. P. Lazzaro, A. Geiersbach, P. Bruza, and E. Fossum, Imaging Cherenkov Radiation with a Time-Gated, Low-Noise Image Sensor, Dartmouth College. (INVITED)
- Md Delowar Hossain, Brian G. Willis, Machine Learning Assisted Multi-Chemistry Sensor Arrays for VOC Identification In Room Air, UConn (INVITED)
- K. Dey, J. Hassan, I. Ahmed, and S. Das, System and Method for Privacy-aware Multi-Stage AI Processing of Enterprise Meeting Data, Northeastern U., and Domani Systems (INVITED)

SESSION IV: Biosensing/Nano-Biosystems (2:20 3:10pm)

Session Chairs: M. Enjalran and B. Wu

- G. Xu, H. Kim, X. Wang, and L. Jay Guo, Identifying Prostrate Cancer using Microring Resonator Array based Photoacoustic Tomography, U. Michigan (INVITED)
- S. Sadhananth, S. Abdulmalik, and S. Kumbar, Innovating Muscle Repair: Insulin as a Growth-Factor Alternative and the Role of Electrical Stimulation in Regeneration, UNMC (INVITED)
- N. Zolfigol and Yu Lei, Direct detection of pesticides using Surface Enhanced Raman Scattering, UConn (INVITED)
- U. Ozuguzel., Y. Su, A. Wagner, and B. Chaudhuri, Probing Lipid Nanoparticle Membrane Dynamics at Atomic Resolution UCONN (INVITED)

SESSION V: Clean Energy, Quantum and Emerging Technologies (3:10-4:00pm)

Session Chairs: M. Gherasimova and T. Schwendemann

- D. Dimitrova and M. Tentzeris, Sustainable Additively Manufactured RF Architectures for Energy-Autonomous Integrated Sensing and Communication (ISAC) and AI-enabling Next-Generation IoT Systems, GA Tech (INVITED)
- G. Gu, AI-Driven Photonics: From Chip-Level Innovation to System-Level Applications, Accelight (INVITED)
- V. Mutalik, TBA, Comcast (INVITED).
- E. Horch, J. McKeon, M. Buchkowski, F. Powers Özyurt, M. Martone, S. Lucero, A. Baculima, C. Broadbridge, M. Smith, M. Wolf, Photon Counting and Planet Hunting with the Integral Field Unit Speckle Imager, SCSU (INVITED)

Poster SESSION (4:00-5:00pm)

Poster authors are available for Q & A

Session Chair: C. Valerio and J. Orszak

Closing Remarks: 5:00-5:10pm

Organizing Committee

D. J. Ahlgren (Emeritus), **Trinity College**
J. Han, **Yale University**
C. Broadbridge, **SCSU**
R. Zeitler, **IEEE Connector**
R. LaComb, **NUWC (Newport, RI)**
A. Fish, **University of New Haven**
R. Gudlavalleti, **Biorasis**, Storrs

S. Grodzinsky (Emeritus), **University of Bridgeport**
E. Murphy, **CMOC**
B. Wu, **SCSU**
J. Chandy, **University of Connecticut**
F. Jain, **University of Connecticut**
M. Gherasimova**, University of Bridgeport**
T. Schwendemann, **SCSU**

F. Xia, **Yale**
J. Orszak, **CASE**
C. Valerio, **CMOC**
J. F. Zheng, **Entegris**
Q. Xia, **UMass, Amherst**
H. Jiang, **Micron**
M. Enjalran, **SCSU**

REGISTRATION INFORMATION

Fees: NONE

Event Manager: Dan Jakubiak
(UConn-ITS), daj@uconn.edu

CMOC Information/Submission:
ait.uconn.edu/cmoc-symposium-2026/

Symposium Location: **WebEx join link** s.uconn.edu/cmoc2026

Local Arrangements: NA

Symposium Parking: NA

For information regarding symposium contents: Contact F. Jain at (860) 881-7355. fcj@engr.uconn.edu

Refunds and Cancellations: N/A

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

Registration Form for Participants:

March 11, 2026

Connecticut Symposium on Microelectronics & Optoelectronics

Virtual,
Registration Fee: N/A

WebEx join link: s.uconn.edu/cmocvirtual

CMOC paper submission link: techsupport.uconn.edu/cmoc-symposium-2026/

Graduate and undergraduate students (not authors/coauthors): Please email: rajahari823@gmail.com

PAPERS FOR POSTER PRESENTATIONS*

P1. Joseph P. Lazzaro, Karthik R. Venkatesan, Eric R. Fossum, High-Dynamic-Range Spectroscopy with a Programmable Readout Pixel Image Sensor, Dartmouth College

P2. Thao P. H. Nguyen, Showmik Singha, Syed Kamrul Islam, Channel Length and Temperature Dependence of HfO2/SiO2 Gate-All-Around Silicon Nanowire Field-Effect Transistor-Based Biosensor for Rapid Point-of-Care SARS-CoV-2 Detection U. Missouri.

UG-P3. J. Robinson, C. Hughes, D. Distefano, J. Byrne, A. Legassey, Quantum Dot Silicon Inverter and F. Jain, UConn.

P4. Aspen M. Scully-Clemmons, Christine C. Broadbridge, Skye Conlan, Single-Particle Transmission Electron Microscopy Sample Preparation and Imaging Procedure for Magnetoelectric Nanoparticles, SCSU; U Miami.

P5. Sirine Glayed, Faouzi Nasri, Mohsen Machhout, Impact of High-k dielectric Material on Electrical and Thermal Performances of FinFET transistor for integrated Circuit Applications, U. Monastir, Tunisia.

P6. Salah Chettouh, Billel Smaani, Mohamed Salah Benlatreche, Husien Salama, Modeling approaches for negative-capacitance FinFETs, U of Mhamed Bougara, Algeria; Comp. Syst. Inst. Boston.

P7. Haifa Bahri, Faouzi Nasri, Husien Salama, Nejeh Jaba, Electrothermal Behavior and Self-Heating Effects in 10 nm SOI FinFETs, U. Monastir, Tunisia; Comp. Syst. Inst. Boston.

P8. Agronil Das, Santanu Das, Comparative Tele-Traffic Analysis for Zoom Bot Infrastructure, UConn.

P9. Juli Yang, Lei Wang, Energy-Efficient Design of Clock-Driven FPGA SNN Inference for Sparse Spikes, UConn.

P10. Zongming Li, Lei Wang, Multiple Operating Modes in LIF-Based Spiking Neural Network via Leakage Configuration, UConn.

P11. Nick Pappas, Lei Wang, Differential Ring Oscillators for Low Frequency Temperature Sensing, UConn.

P12. Maritza Alejandra Sanchez, Thomas Sadowski, Rich Pellegrino, Christine C. Broadbridge, Recovery of Anode Material from Spent Lithium-Ion Batteries: A Novel Approach to Battery Recycling, SCSU.

HS P13. Roshan Das, Optimizing Video Content Delivery to Mobile Phone Devices to Conserve Video Buffer Memory Using a Markov Process, Northside College Prep High School, Chicago.

P14. Maryam Ahmadi, Brian Willis, Low-Temperature Area-Selective Cu Atomic Layer Deposition for Nanogap Engineering of Plasmonic Antennas, UConn.

P15. Shunyao Fan, Niloy K. Dutta, Optical Logic Network Based on Quantum Dots Semiconductor Optical Amplifiers and Fiber Lasers, UConn.

P16. Hossein Hedayati, Machine Learning-Driven Prediction of Electrical and Optical Properties in Quantum Nanomaterials Synthesis, UConn

P17. Andrew J Fish, A solution for first order linear delay differential equations, UNH.

P18. F. Jain, R. Gudlavalleti, J. Chandy, L. Wang, R. LaComb and E. Heller, Multi-electron Finite-Quantum Dot Superlattice (F-QDSL) Structures as a Platform to implement Logic, Compute-In-Memory, and Spin-Qubits, Biorasis Inc., Synopsys Inc., UConn.

P19. A. Sarwar, N. Zolfigol, Y. Cho, and Y. Lei Surface-Enhanced Raman Scattering for Trace Detection of Pesticides Using Bipyramid Nanoparticles on AAO Membranes, UConn.

P20. Sebastian Lucero, Max Martone, Riley Barrett, Elliott Horch, Photon Counting with the Southern Connecticut State Interferometer, SCSU.

P21. Vishal Dhagat, Fotios Papadimitrakopoulos, and Faquir Jain, Fading Circuits, Lasting Impact: A Proposal for Programmable Bioresorbable Nanosensors for Closed-Loop Post-Surgical Monitoring, UConn.

P22. André Correa, Nicholas Anderson, Thomas Sadowski, Christine Broadbridge, Selective Extraction of Metals from Lithium-Ion Batteries Using Proprietary Solution and Electrodeposition of Copper onto Metallic Substrates, SCSU.

P23. B. Saman, A. Almalki, R. Gudlavalleti, J. Chandy, and F. Jain, Design and simulation of a one-bit quaternary incrementer using Spatial Wavefunction Switched Field-Effect Transistor (SWS-FET) technology, Taif Univ., UConn.

P24. R. Gudlavalleti, E. Heller, J. Chandy, and F. Jain, In-Memory Boolean Logic Computations in Multistate SWSFET-SRAM, Biorasis Inc., Synopsys Inc., UConn.

HS-P25. Khandaker Mosabbir Rayed, Dominik Wierzbicki, A Demonstration of Increased Efficiency of Synthetic Ruthenium Zeolites over Nickel for the CO2 Methanation Reaction to Produce Clean Biofuels, The Bronx High School of Science and Brookhaven National Laboratory.

P26. Bethel Wodajo, Saion Sinha, Edge-Optimized Deep Learning Framework for Real-Time Wearable EMG Bio-Sensing, UNH.

P27. Cairo J. Miller, Reginald Miller III, Data Compression as Intelligence & as a Service, Gateway Community College.

***Presenters, please upload poster PDF and a 2 min audio file by <u>5:00pm on Monday, 3/9/26</u>**
Prepare to be present for a Q & A session on WebEx on <u>Wednesday 3/11 around 4-5 pm</u>