iMAPS New England 52nd Symposium & Expo

KEYNOTE SPEAKER

11:15AM-12:00NOON

Dr. Will Green

Senior Manager, Co-Packaged Optics and Photonics

IBM Research

Yorktown Heights, NY

BIOGRAPY: Will Green is Senior Manager of the Co-Packaged Optics and Photonics Team at IBM Research. With a background in photonic interconnects, design enablement, and process integration, he has a track record of driving innovation in optical technologies. He led the development and technology transfer of IBM's CMOS Integrated Silicon Nanophotonics platform, building new offerings with foundry clients and short-reach optical interconnect suppliers. Will has also advanced research applications enabled by the silicon nanophotonics platform, including near- and mid-infrared photonic trace gas sensors. Will and colleagues are currently developing tight-pitch through-substrate optical vias to enable 2.5D/3D photonic packaging. Will holds a Ph.D. in Electrical Engineering from Caltech.

Co-Packaged Optics for the AI Era

Scaling of AI workloads has transformed computing into a fundamentally communication limited system, exposing hard limits in power delivery, bandwidth density and network scalability. As "AI factories" push toward hundreds of thousands of accelerators, legacy assumptions about high-speed signal reach, pluggable optics, and modular system boundaries are being aggressively challenged. CoPackaged Optics (CPO) is not an incremental optical upgrade-it represents an architectural inflection point driven by the economics of scale itself.

This talk examines why the marketplace for CPO is accelerating, and argues that its success is increasingly enabled by advanced packaging technologies rather than optical device physics alone. A diverse set of optical platforms—including VCSELs, silicon photonics, and indium phosphide photonics-are likely to coexist within AI datacenters as context specific solutions optimized across coupled dimensions of reach, bandwidth density, energy per bit, thermal tolerance, fiber count, reliability, cost, and package form factor.

Crucially, the evolution of CPO is inseparable from the adoption of microelectronics packaging concepts such as chiplet architectures, fanout wafer level packaging, hybrid integration, high density interposers, and waferscale integration. Parallel photonics optimized packaging concepts are also emerging. Selected IBM Research innovations, including polymer waveguide based adiabatic coupling, will be discussed as enablers for bandwidth dense, robust, and manufacturable CPO systems.

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TECHNICAL PROGRAM

8:45-11:15AM

Additive Technology

Session Chair: Alkim Akurtlu, UMass Lowell

Fine Resolution and High-throughput Additive Manufacturing f or 3D HI and Advanced Packaging Applications
Ahmed Busnaina, Northeastern University

Additively Manufactured Electronics for Harsh Environments
Osh Ranasingha, Daniel Bousquet, UMass Lowell

Cyclic Olefin Thermoset-based Low-Loss Dielectric for Additive Applications
Scott Twiddy, Inkbit

Additive Manufacturing for ICs
Emily Lamport, Draper Laboratories

Advanced Packaging

Session Chair: Jim Ohneck, Microdul

Advancements in Low Temperature Hermetic Sealing
Rich Richardson, MicroCircuit Labs

Scaling of AI Data Servers (Chiplets)
Satoru Kuramochi, Dai Nippon Printing Co., Ltd.

Component Out of Pocket Events, Jammed Component in Pocket Events in Chip Trays and Waffle Pack Assemblies
Katherine Kutina, Forgione Engineering

Steady-state and Transient Temperature Fields over Package-Representative Domains
Ananth Sridhar, Luminary

1:00-3:00PM

Photonics & Optoelectronics Packaging

Session Chair: Juejun Hu, MIT

Twisting Light with Nanomachine
Dr. Haoning Tang, Massachusetts Institute of Technology

Visible Photonic Integrated Circuits for Neuroscience
Aseema Mohanty, Tufts University

Recent Advances in Ultra-compact Planar Optics for Advanced Integrated Optical and Photonic Systems
Tian Gu, 2 Pi Inc.

High Reliability and High Throughput Eutectic Bonding of High-Power Laser Diodes.
Guoxi Sun, MRSI-Mycronic

Advanced Materials

Session Chair: Rita Mohanty, Henkel

Materials for Printed Wearable Heaters
Guinnevere Strack, UMass Lowell

Liquid Compression Mold Underfill Optimization with Low Warpage and Narrow Gap Flow
Ken Araujo, Namics

Micro-textured pocketless carriers for Enhanced Manufacturing Agility
Jerry Broz, Gel-Pak

High Ohmic Thick Film Pastes for AlN Ceramics - Ruthenium Resistor Paste Innovations for New Applications
Richard Schmidt, Fraunhofer IKTS

3:00-4:00PM

Afternoon Plenary Panel Discussion

Advancements in Materials, Chiplets and Photonics Packaging

Moderator: Jim Ohneck, Microdul

featuring:

Jerry Broz - Gel-Pak, Mohammed Matin - CELUS, Tian Gu - 2 Pi Inc, Haoning Tang - MIT, Dan Hines - RTX

REGISTER HERE

IN THE EXHIBIT HALL

9:00AM–5:00PM

Interactive Dialogue Session

Session Chair: Jon Medernach, MRSI (Retired)

Development of Additive Manufactured Printed Resistors for Heterogeneous PCB Integration
John Bennett, UMass Lowell

High Resolution Additive Manufacturing of RF Structures Using XTPL Technology
Boris Berkovich, UMass Lowell

Additive Approaches to Phase Tuning for RF Applications
Nate D'Agati, UMass Lowell

Additive Packaging for Microelectronics
Lucas Unger, UMass Lowell

Screening Commercial Silver Nanoparticle Inks for Harsh Environment Applications
Jacob Hancock, UMass Lowell

Functional Inks Tailored for RF Applications
Morgan Michael, UMass Lowell

Additive Printing Technical Challenges in Electronic Manufacturing
Hyunhye Shin, NanoOps

Directed Fluidic Assembly-based Fast Fluidic Assembly (FFA)
Aditya Kashyap Velide, Northeastern University

Structured Component Intelligence and AI enabled workflows for Practical PCB Design
Mohammad Matin, CELUS

Liquid-Based Printing of RDL Interconnects Structures for 3D HI of Electronics
G. Cagatay Ozseker, Northeastern University