CHIPS Act, Si-photonics among topics featured at 2023 IEEE 73rd ECTC

By Ibrahim Guven [General Chair, 2023 IEEE 73rd Electronic Components and Technology Conference and Virginia Commonwealth University]

ECTC is the premier international microelectronic packaging, components, and systems technology conference. The 73rd edition of the ECTC was held at JW Marriott Grande Lakes in Orlando, Florida, USA, from May 30 to June 2, 2023, and it was a resounding success. We had 1,619 attendees from 28 countries, the second-highest attendance in the 73 years of ECTC.

Preparation for ECTC 2023 started one year ago and was strongly supported by over 250 experts from 15 countries—members of 10 technical committees. The technical committees critically reviewed 618 submitted abstracts from industry (56.1%) and academia (43.9%), resulting in 369 technical papers. The papers, organized in 41 sessions, included five interactive presentation sessions – one of which was dedicated to students – were presented by speakers from 22 countries.

The most attended topics reflected interests in wafer/panel-level and advanced substrate technologies, large form factor dense system integration by fan out, and advancements in copper/silicon-oxide hybrid chip-to-wafer bonding. The three CHIPS Act special sessions also attracted many of our attendees. Special emphasis was also given to Si-photonics with two regular sessions and one special session. There were six talks with more than 400 attendees, ten with more than 300 attendees, and fifteen with more than 200. The most attended session averaged a whopping 417 attendees across seven talks. These attendance numbers unmistakably communicate the importance of ECTC in the packaging industry and the criticality of packaging in the overall electronics industry. Supplementing the technical program and co-located with the IEEE ITherm Conference, ECTC offered 13 CEU-approved professional development courses (PDCs).

Figure 1: Prof. Michael Manfra, Purdue University, delivering Keynote Speech and subsequent Q&A.

We were honored to have Michael Manfra, Bill and Dee O'Brien Distinguished Professor of Physics and Astronomy at Purdue University, and Scientific Director of Microsoft Quantum Lab West Lafayette, as our Keynote Speaker. Prof. Manfra (**Figure 1**) described the current state of quantum computing from a hardware perspective, listing the challenges and opportunities ranging from the basic choice of qubit platform, through scalable control and readout, to system architecture. He focused on what the packaging community can now innovate to make this revolutionary technology a reality. Following the keynote speech, a substantial Q&A session was held. Prof. Manfra's talk was captivating, inspirational, and intellectually stimulating.

This year the conference included nine special sessions and panel discussions that were very well attended and with international participation of experts and executives across the supply chain. These events (see list below) featured deep-dive discussions on technology developments, emerging applications, different perspectives, business and industry insights, and trends, as well as career, diversity and workforce development topics:

- IEEE EPS President's Panel
  - Co-chaired by IEEE EPS President Kitty Pearsall of Boss Precision, US and David McCann of Lyte, and moderated by Amr Helmy of University of Toronto on "How can Photonics Enable the Bandwidth Densities with Lower Energy per Bit in Emerging SIP;"
- ECTC Plenary Session
  - Co-chaired by Kevin Gu of Metawave Corp. and Ivan Ndip of Fraunhofer IZM/Brandenburg University of Technology on "Digital Transformation – The Cornerstone of Future Semiconductor and Advanced Packaging Growth;"
- IEEE EPS Seminar
  - Co-chaired by Takashi Hisada of IBM and Yasumitsu Orii of Rapidus, Japan, on "The Future of High-density Substrates – Towards Submicron Technology;"
- ECTC Materials & Processing and Thermal/Mechanical Simulation & Characterization Technical Sub-Committees Special Session
  - Co-chaired by Tanja Braun of Fraunhofer IZM, Germany, and Przemyslaw Gromala of Bosch, Germany on "Advanced Packaging and HIR for Harsh Environment – Current Status and Opportunities;"
- ECTC Interconnections Technical Sub-Committee Special Session

Figure 2: ECTC/ITHERM Diversity Panel.

Figure 3: Great networking events—never too early to start attending ECTC!

Figure 4: We are looking forward to seeing you at the Gaylord Rockies Resort and Convention Center in Denver, Colorado, USA for 2024 ECTC.

  - Co-chaired by Thomas Gregorich (Infinera) and Chaoqi Zhang (Qualcomm), and moderated by Jan Vardaman of TechSearch International on "Copper Hybrid Bond Interconnections for Chip-On-Wafer Applications;"
- ECTC Photonics Technical Sub-Committee Special Session
  - Co-chaired by Stéphane Bernabé of CEA Leti, France, and Hiren Thacker of Cisco that covered "Photonic Integrated Circuit Packaging: Challenges, Pathfinding and Technology Adoption;"
- ECTC CHIPS Act Special Session
  - Co-chaired by Nancy Stoffel of GE Research, Jan Vardaman of TechSearch International, and William Chen of ASE on "Advanced Packaging Manufacturing in North America: Building the Ecosystem;"
- ECTC/ITHERM Diversity Panel
  - Co-chaired by Kim Yess of Brewer Science, Nancy Stoffel of GE Research, and Cristina Amon of University of Toronto, Canada, on "Diversifying our Technical Workforce to meet National Needs including the CHIPS Act Initiative" (**Figure 2**);
- ECTC Young Professionals Networking Panel
  - Chaired by Yan Liu of Medtronic, Inc., a networking panel focusing on career development for young professionals with the participation of IEEE EPS Board of Governors (**Figure 3**); and
- Heterogeneous Integration Roadmap (HIR) Workshop
  - o Sponsored by the IEEE EPS and chaired by William Chen of ASE, Bill Bottoms of MTS, US, and Ravi Mahajan of Intel, took place at our conference with another packed audience this year as well. Thank you to the HIR committee for bringing another excellent workshop to ECTC.

This year the ECTC hosted a sold-out lineup of 117 exhibitors in the Technology Corner and attracted a record level of industry support with 49 sponsorships and 13 media partners. This level of support significantly indicates the growing interest in advanced packaging and the vital role ECTC plays in this industry. This year's event delivered even more diversified content. Besides the highly technical content of this conference and several opportunities to learn and get insights into the latest developments and trends in microelectronics packaging, ECTC is also well known for its excellent networking events. ECTC 2023 offered over 10 receptions, gala, luncheons, and networking events.

The feedback was overwhelmingly positive, and on behalf of the entire Executive Committee, we would like to thank all our participants and contributors for their strong and continued support. Special thanks go to the Executive Committee and IEEE EPS sponsoring organization for their commitment and support in making this year a fantastic event.

Looking forward, the 74th ECTC will be held at the Gaylord Rockies Resort and Convention Center in Denver (**Figure 4**), Colorado, between May 28 and 31, 2024. The Call for Papers can be found at www.ectc.net. Abstract submission will close on October 9, 2023. Plan to attend in-person sessions, get to know new people, learn where this industry is going, and network with your colleagues!

CALL FOR PAPERS OPENS AUGUST 15!

As the premier event in the semiconductor packaging industry, ECTC addresses new developments, trends and applications for fan-out & fan-in packages, 3D & 2.5D integration, TSV, WLP, flip-chip, photonics, LEDs, materials and other integrated systems packaging topics.

Abstract submissions for the 74th ECTC are due by **October 9, 2023**.

May 28 - May 31, 2024
Gaylord Rockies Resort & Convention Center
Denver, Colorado, USA

To submit, visit:
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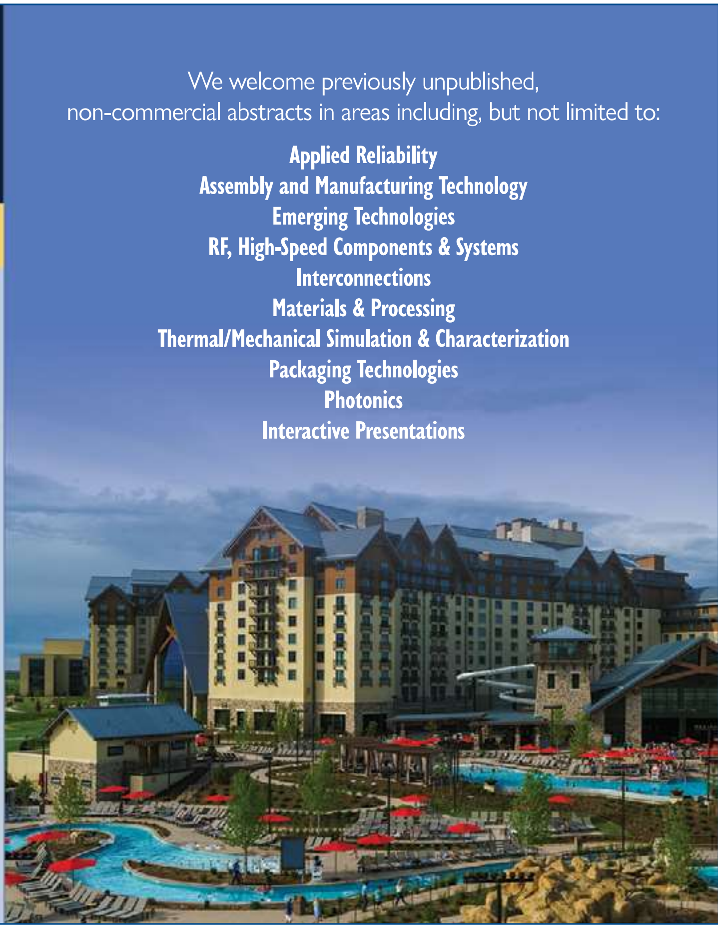

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