System integration combines several components from different semiconductor technologies in order to use their best properties. Components for analog and digital signal and data processing, communication or sensors can be integrated into extremely small and powerful systems.

Aiming leading-edge products, this technology approach gives rise to numerous challenges: On the one hand, dissimilar technologies, sizes and materials have to be taken into account. On the other hand, handling, electrical and mechanical interconnection and protection from external influences have conflicting requirements.

Challenges, that can be overcome! Fraunhofer is designing a workshop to show you the countless advantages of this technology, but also the solution to the associated challenges.

**REGISTRATION**

This workshop is part of this year’s IMAPS 2020, 53rd International Symposium on Microelectronics
For registration please go to: www.imaps2020.org

**PARTICIPATION FEE**

The workshop is free of charge

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**PARTNERS**

Fraunhofer USA
Fraunhofer IZM

Michigan State University

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**YOUR BENEFIT**

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12.00 Welcome and introduction
Symbiosis of Fraunhofer USA and IZM (Germany).
Overview of technology development and opportunities for cooperation.
Thomas Schülke

12.15 Keynote: Heterogeneous integration:
A key enabler for electronic systems
Market needs, technology paths, difficult challenges and potential solutions
Rolf Aschenbrenner

12.45 Heterogeneous integration technologies for fan-out, embedding and interposer wafer level packaging
Research highlights for application specific solutions addressing particular areas of the integration technologies
Michael Schiffer

1.00 Panel level packaging - A high volume manufacturing platform for SiP
Overview on technology trends towards 3D integrated systems and introduction to cost and environmental opportunities and the high volume manufacturing status.
Tanja Braun

1.20 Heterogeneous photonics integration
Fine pitch bumping, high precision bonding, low temperature joining and cost effective assembly methods for reliable products
Hermann Oppermann

1.35 Embedding technologies for the realization of high-performance power modules
Technology overview of laminate based embedding for power electronic packages and modules. Improved electrical performance, miniaturization and reliability.
Lars Boettcher

1.50 Additively manufactured RF interconnects
Challenges facing dense, high-frequency interconnects in heterogeneous packages. Overview of technology status and recent advances in printing approaches.
John Albrecht

2.00 Short break

2.10 Multi-material aerosol-jet printing
Emerging technological advances in co-printing of ceramic, dielectric, and metal materials in a single process.
Examples of integrated electronic structures.
Michael Craton

2.25 Additively manufactured RF system-in-package integration
Die-level integration with printed interconnects. RF passive and active integration with examples of measured performance of integrated systems.
John Papapolymerou

2.40 Optical and THz applications achieved through advanced package integration
High-resolution printed passive structures. Integration of optical components with electronics packaging approaches.
Premjeet Chahal

2.55 Wrap-up and closing