REGISTRATION
www.izm.fraunhofer.de/en/news_events/events/ws_8
You will find hotels near the venue on the registration website.

PARTICIPATION FEE
780 € per person
The fees are VAT exempt according to § 4 No. 22 UStG.

10% discount for members of one of the Innovation Networks for Optical Technologies (Innovationsnetze Optische Technologien, OptecNet Deutschland), or EPIC (European Photonics Industry Consortium)

VENUE
Fraunhofer Institute for Reliability and Microintegration IZM
Gustav-Meyer-Allee 25 | Bld. 17.3, Raum 60a+b
13355 Berlin

CONTACT
Henning Schröder
Phone: +49 30 46403-277
henning.schroeder@izm.fraunhofer.de

WHO SHOULD ATTEND
The workshop addresses scientists and engineers involved in photonic packaging: Process technology, materials and equipment, as well as decision makers.

In cooperation with

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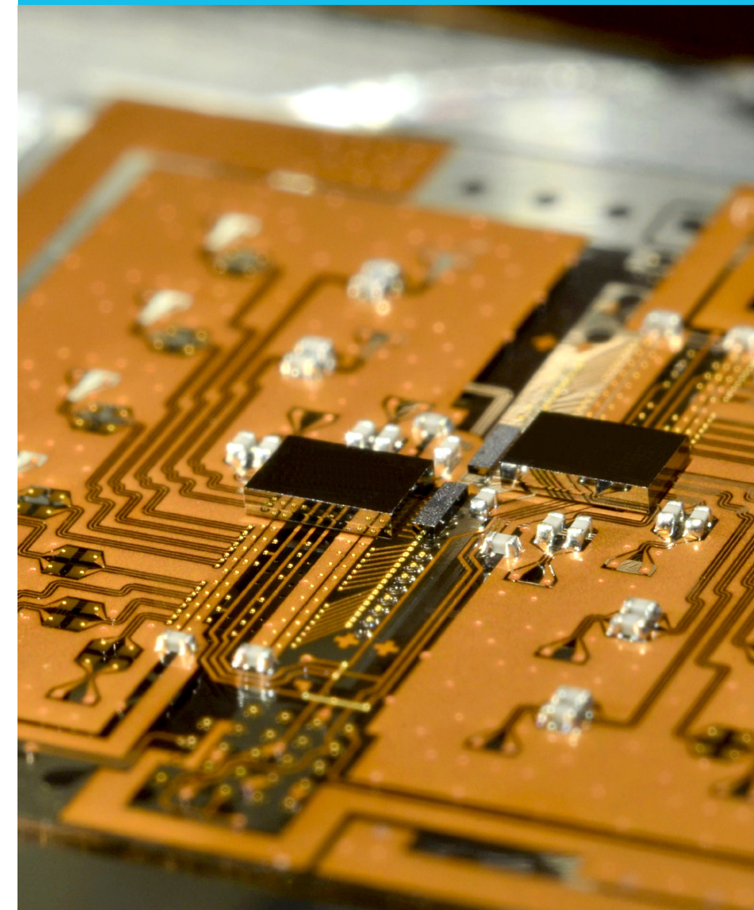
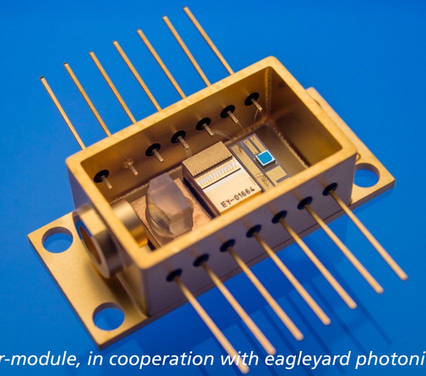
Fraunhofer IZM

FRAUNHOFER INSTITUTE FOR RELIABILITY AND MICROINTEGRATION IZM

PHOTONIC PACKAGING SUB-MICRON ASSEMBLY

WORKSHOP | JUNE 12-13, 2018

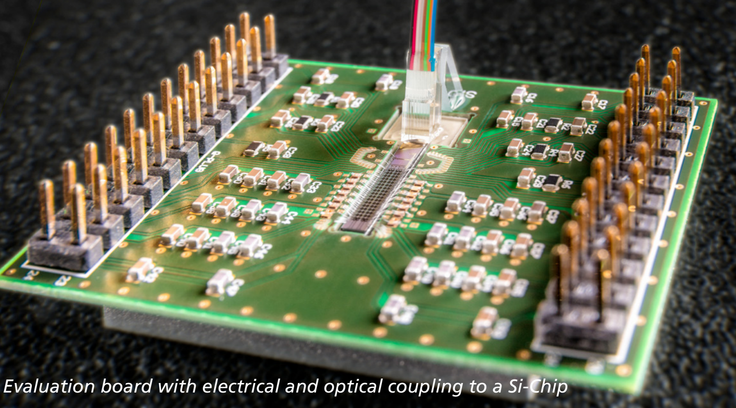


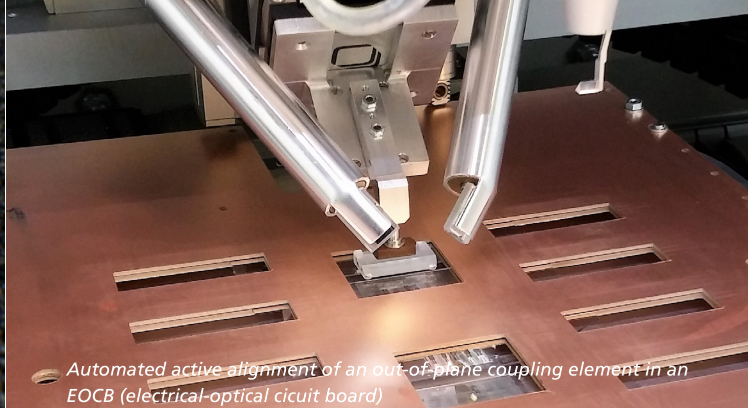

One-lense laser-module, in cooperation with eagleyard photonics GmbH

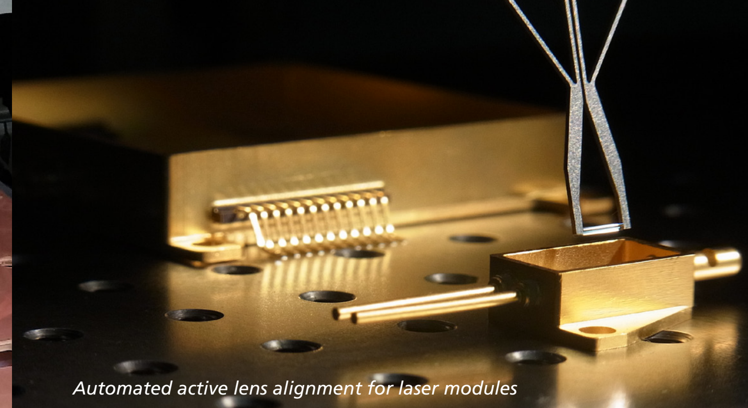
WORKSHOP OVERVIEW
Photonic integration in data communication is driven today both by the increasing demand for bandwidth and higher channel density within the systems. Furthermore miniaturization in lightening and projection techniques, and a wide variety of optical sensors require new photonic assembly concepts to reduce costs and guarantee reliability. Photonic integrated circuits (PIC) and MOEMS based devices need 3D-integration, and challenges in terms of optical fibre attachment have to be solved. Photonic packaging is crucial and includes single packages, modules or subsystems comprising at least one optoelectronic device or micro-optical element and optical interconnects.

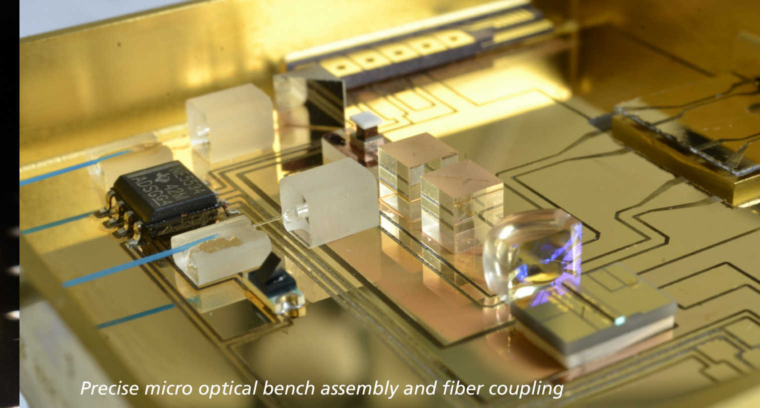
High precision alignment is a key, yet the lack of standards for photonic interconnects hinders low cost generic solutions. We see that there are many challenges to be taken by OEM manufacturers, suppliers and service assemblers to face the specific challenges regarding very tight tolerances. Sub-micron accuracy has to be achieved and maintained during operation for many photonic applications.

Thus the Photonics Packaging workshop 2018 at Fraunhofer IZM focuses on sub-micron assembly technologies for optoelectronic and photonic integration on board, package and device level.


Evaluation board with electrical and optical coupling to a Si-Chip


Automated active alignment of an out-of-plane coupling element in an EOCB (electrical-optical cicuit board)


Automated active lens alignment for laser modules


Precise micro optical bench assembly and fiber coupling

PROGRAM JUNE 12TH

13.00 Welcome

SESSION 1: ADVANCED PHOTONIC NEEDS FOR HIGH PRECISION

13.20 Photonic integrated soliton frequency combs
Tobias J. Kippenberg, EPFL, Lausanne, CH

13.40 Miniaturized optical quantum technologies on ground and in space
Markus Krutzik, Institut für Physik, HU Berlin, GER

14.00 High precision mounting - Enabling new micro laser sources for biophotonics
Kathrin Paschke, Ferdinand Braun Institut für Höchst-frequenztechnik, Berlin, GER

14.20 Coffee Break

SESSION 2: PIC ASSEMBLING AND PACKAGING ON WAFER LEVEL

14.50 Industrial requirements for high precision opto-electronic assemblies
Gunter Vollrath, Aifotec AG, Meiningen, GER

15.10 Wafer level processing and packaging of optical modules utilizing nanoimprint lithography and wafer bonding
Martin Eibelhuber, EV Group, St. Florian am Inn, AT

15.30 Precision flip chip bonding optoelectronic components
Hermann Oppermann, Fraunhofer IZM, Berlin GER

15.50 Optical spot size conversion in photonic BiCMOS: Fabrication and characterization
Lars Zimmermann, IHP – Leibniz-Institut für innovative Mikroelektronik, Frankfurt/Oder, GER

16.10 Coffee Break

SESSION 3: MODULE INTEGRATION AND PACKAGING

16.40 Photonic wirebonding and 3D nano-printing in optical packaging - From research to manufacturing
Christian Koos, Vanguard Photonics GmbH and Karlsruher Institut für Technologie, Karlsruhe, GER

17.00 Assembly of silicon photonics transceiver modules for optical data center interconnects
Christoph Theiss, Sicoya GmbH, Berlin, GER

17.20 Chip I/O disaggregation. Co-package of a 2D optical interconnect with a switch ASIC
Kobi Hasharoni, Dust Photonics LTD, Modiin, ISR

17.50 Advanced photonics packaging and integration of silicon photonic devices at CNIT/InPhoTec
Giovan Battista Preve/Davide Rotta, CNIT/InPhoTec Foundation, Pisa, ITA

18.00 Get-together with special lab-tour: Start-a-Factory @ Fraunhofer IZM

PROGRAM JUNE 13TH

9.00 Welcome

SESSION 4: PRECISION STRUCTURING AND PASSIVE ALIGNMENT

9.20 Optical fiber assemblies for high-precision fiber to chip coupling
Andreas Matiss, Corning Optical Communications GmbH&Co. KG, Berlin, GER

9.40 Sub-micron passive alignment of photonics for production: What about process and machine capability?
Rudolf Kaiser, Amicra Microtechnologies GmbH, Regensburg, GER

10.00 High precision optical 3D-microassembly for volume production based on Si-micromechanics
Jörg-R. Kropp, InBeCon GmbH, Berlin, GER

10.20 Hybrid InP-TriPleX packaging in multi project wafer access
Arnde Leinse, LioniX International BV, Enschede, NL

10.40 Coffee Break

SESSION 5: AUTOMATION AND PRECISE ACTIVE ALIGNMENT

11.10 High-volume submicron attachment using active alignment
Torsten Vahrenkamp, ficonTEC Service GmbH, Achim, GER

11.30 Sub-micron passive alignment and bonding with automatic offset correction based on indirect visual feedback or external measurements
Martin Rogge, Finetech GmbH&Co KG, Berlin, GER

11.50 Interferometric feedback for the SmarPod 6D-Parallel kinematics: Tackling mechanical tolerances with the PicoScale
Kolja Kolata, SmarAct GmbH, Oldenburg, GER

12.10 Recent advances in high-throughput, ultra-precision photonic alignment for industrial test and packaging
Scott Jordan, Physik Instrumente, Sausolito, USA

12.30 Lunch Break

SESSION 6: OPTICAL INTERCONNECTS AND HYBRID COMPONENT INTEGRATION

13.30 Additive and subtractive 3D printing of transparent materials with sub-micron precision
Martin Hermans, LightFab GmbH, Aachen, GER

13.50 Integration of technologies for the development of photonic-based lab-on-a-chip devices
Jaime Garcia-Ruperez, Polytechnic University of Valencia, Valencia, ES

14.10 Addressing cost and reliability targets for application specific packages
Jörg Muchametow, eagleyard photonics GmbH, Berlin, GER

14.30 Thin glass based optical sub-assemblies of electro-optical components
Gunnar Böttger, Fraunhofer IZM, Berlin, GER