

FRAUNHOFER HEINRICH HERTZ INSTITUTE

PRESS RELEASE

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Fraunhofer HHI at Photonics West 2016, February 13-18 in San Francisco

The Fraunhofer Heinrich Hertz Institute HHI presents the latest developments in sensory and laser technology at the Photonics West. Meet our experts at the joint German booth 4629-28, hall D on February 13-18 in San Francisco, United States.

You find the following highlights at our boot 4629-28, hall D:

Terahertz sensing – World’s most compact THz-transceiver

Terahertz radiation has proven potential as versatile tool for non-destructive testing (NDT). Up to now, the application of THz technologies in industrial environments is severely impeded due to the complexity of today’s THz sensor heads. Especially reflection measurements suffer from bulky and expensive devices. The Fraunhofer HHI presents a novel integrated THz-transceiver, which combines emitter and detector in a single, compact module and allows for measurements under normal incidence for the first time.



Fiber optical 3D shape sensors: Cyberglove – control of robots with nerves out of glass

A new concept for a multifunctional fiber sensor platform for 3D shape sensing is developed by applying a novel femtosecond laser processing technology for high-precision direct writing of Bragg gratings within the core and the cladding of optical fibers. These sensors are exemplary integrated in a Cyberglove, where the movements of each individual finger can be detected, visualized, and simultaneously transferred to a robotic hand.



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Integrated Tunable Lasers for THz generation: Dual tunable laser chip at 1.5 μ m - based on Fraunhofer HHI's hybrid integration platform PolyBoard

Fraunhofer HHI's PolyBoard platform enables the hybrid integration in one chip of two Polymer/InP DBR tunable lasers in the 1.5 μ m wavelength range. Each laser shows a tuning range of 20 nm (2.4 THz), and continuous sweeps of more than 9 nm (1.1 THz) have been demonstrated. Application fields of such dual optical sources are DWDM optical networks, CW Terahertz systems, microwave photonics, and spectroscopy.



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The **Fraunhofer Heinrich Hertz Institute** is a world leader in the development of mobile and fixed broadband communication networks and multimedia systems. From photonic components and systems through fiber optic sensor systems to video coding and transmission, the Fraunhofer HHI works together with its international partners from research and industry. www.hhi.fraunhofer.de

The Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. Its research activities are conducted by 66 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of nearly 24,000, who work with an annual research budget totaling more than 2 billion euros. Of this sum, around 1.7 billion euros is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.

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