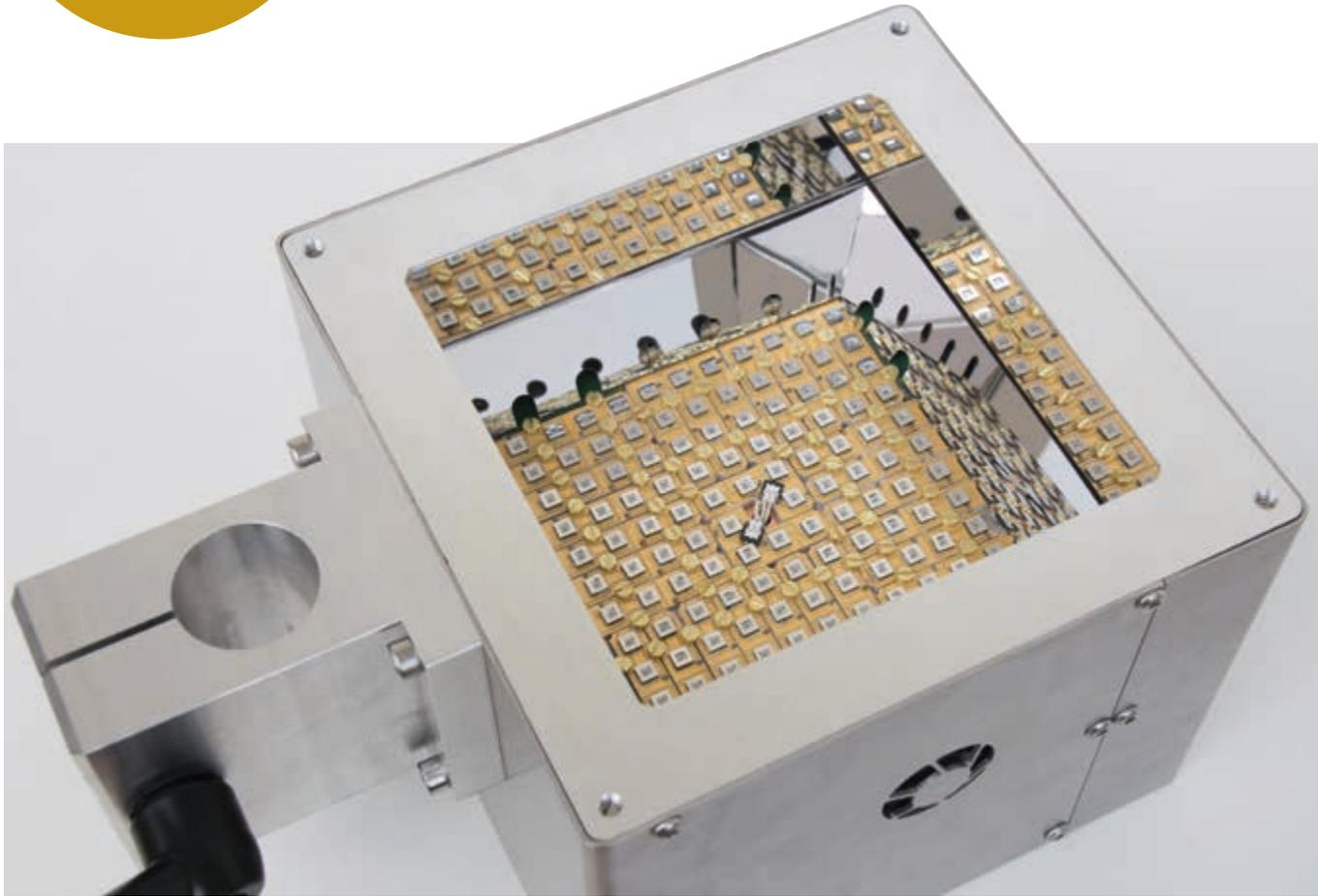




Leibniz  
Ferdinand  
Braun  
Institut



**Prototype Engineering Lab**

**Plug & Play Solutions**

## Hand in hand – making research usable

FBH's in-house Prototype Engineering Lab helps to bridge the gap between research and industry, ensuring that excellent research results are transferred even faster into market-oriented products, processes and services. The developed high-level integration yet easy-to-handle

systems enable partners to conveniently test FBH's R&D results in their applications – in simple plug & play operation. With our user-friendly, industry-suited prototypes we also support product development in small- and medium-sized companies.

## Your partner – from concept to prototype

Services for cooperation partners and companies:

- development of demonstrators for specific application fields
- integration of research modules and components in portable stand-alone devices
- miniaturization of laboratory set-ups into easy-to-use models
- practical prototypes integrating power supply, sensors, control unit, and laboratory electronics
- support during product development, in particular for small- and medium-sized companies

**Application requirements**  
Design and simulation of the system

**Fabrication of the system**  
Development of system electronics, cooling, housing, and software

**Application test**  
Testing and optimization



1

## Comprehensive competencies in prototype development

Our team combines the interdisciplinary know-how of physicists, engineers and technicians with the skills of our fine mechanics workshop to create innovative solutions for each application.

We support our customers with:

- mechanical design, electronic engineering, simulations
- customized software with GUI
- initial operation and optimization in electronic laboratory
- extensive functional testing in in-house laboratories and workshops



- 1 Portable SERDS system used for field measurements on soil.
- 2 UV-LED irradiation system for skin treatment applied in medical in vivo studies.



2



3



4

- 3 Demonstrator for disinfecting everyday objects with UVC LEDs emitting at 265 nm.
- 4 PMSD - programmable laser driver unit (r.) for laser modules mounted on butterfly laser mounts (l.).

## State-of-the-art fine mechanic workshop

Excellent equipped workshop on 190 square meters that opens up many new possibilities to manufacture precision components for research and prototyping – operated by dedicated and experienced personnel.

Equipment includes:

- 3-D printer – to flexibly design metal components
- multipurpose wire EDM – cutting precision and accuracy to the thousandth of a millimeter
- 5-axis CNC milling machine – freely manoeuvrable tool for fabrication of very precise and complex components in just one step



# translating ideas into innovation

The Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) is an application-oriented research institute in the fields of high-frequency electronics, photonics and quantum physics. It researches and realizes electronic and optical components, modules and systems based on compound semiconductors. These devices are key enablers that address the needs of today's society in fields like communications, energy, health, and mobility.

Specifically, FBH develops light sources from the infrared to the ultra-violet spectral range: high-power diode lasers with excellent beam quality, UV light sources, and hybrid laser modules. Applications range from medical technology, high-precision metrology and sensors to optical communications in space and integrated quantum technology. In the field of microwaves, FBH develops high-efficiency multi-functional power amplifiers and millimeter wave frontends targeting energy-efficient mobile communications, industrial sensing and imaging as well as car safety systems. In addition, the institute fabricates laser drivers and compact atmospheric microwave plasma sources operating with energy-

efficient low-voltage drivers for use in a variety of applications.

The FBH is a center of competence for III-V compound semiconductors covering the full range of capabilities, from design through fabrication to device characterization. Within Research Fab Microelectronics Germany (Forschungsfabrik Mikroelektronik Deutschland – FMD), FBH joins forces with 12 other German research institutes, thus offering the complete micro and nanoelectronics value chain as a one-stop shop.

In close cooperation and strategic partnerships with industry, FBH's research results lead to cutting-edge products. The institute also successfully turns innovative product ideas into spin-off companies. With its Prototype Engineering Lab, the institute strengthens its cooperation with customers in industry by turning excellent research results into market-oriented products, processes and services. The institute thereby offers its international customer base complete solutions and know-how—from design to ready-to-use modules and prototypes.

## contact

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