

FRAUNHOFER INSTITUTE FOR APPLIED OPTICS AND PRECISION ENGINEERING IOF

PRESS RELEASE

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Federal Research Minister Dorothee Bär inaugurates new research building

New laboratories and machines for high-tech research

Jena (Germany)

The Fraunhofer Institute for Applied Optics and Precision Engineering IOF inaugurated its newest research building today with a ceremony. In addition to Federal Research Minister Dorothee Bär, Thuringia's Minister President Mario Voigt and other guests from politics, business, and industry took part in the celebrations. Special highlights in the new building include a new electron beam lithography facility for the production of photonic components and a ground station for satellite-based quantum communication.

Spanning more than 2,000 m², the new building will provide Fraunhofer IOF with new laboratories, clean rooms, and offices in close proximity to the institute's main building. This third extension to the research institute represents an important strategic step for its future. The additional laboratory and clean room space will be used to advance relevant future topics from the High-Tech Agenda.

"With the High-Tech Agenda Germany, we are restoring Germany's position as a leading technology nation. Optics and photonics are essential foundations in this endeavor and are used in a variety of ways across key technologies such as quantum technologies, biotechnology, and microelectronics. Fraunhofer IOF is advancing the optical technologies and applications of tomorrow and bridging the gap between science and industry. The new research building inaugurated today further enhances the potential of the location. We are well on the way to establishing 'Made in Germany' as a seal of technological excellence, especially in photonic technologies," explained Federal Research Minister Dorothee Bär.

Minister President Mario Voigt, who accompanied the federal minister on her visit together with Thuringia's Science Minister Christian Tischner, added: "Thuringian optics, especially those from Jena, enjoy a worldwide reputation. Fraunhofer IOF in particular is a real success story. Founded during the turbulent times following German reunification, the institute has developed into a globally sought-after partner for science and industry in the field of instrumentation over the past 30 years. Of particular importance for the economic development of the region are the more than twenty companies founded by the institute and its partner institutions, which today offer secure jobs to more than 350 highly specialized employees. The expansion of Fraunhofer IOF with the latest new building will help to strengthen this development. It will continue to establish Thuringia as a hub of the German photonics industry."

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Minister of Science Christian Tischner emphasized: "The Free State has supported the construction of a new electron beam lithography facility at Fraunhofer IOF with 12 million euros and covered half of the construction costs. This is money well spent—because cutting-edge research requires cutting-edge infrastructure."

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"In the presence of Federal Minister Bär and Minister-President Voigt, we have not only opened a new building today. We are creating a platform for the technologies of the future that will have a far-reaching impact on the region and set new standards. The new laboratories offer a wide range of opportunities for the development and manufacture of high-precision optical and photonic systems. This creates ideal conditions for cutting-edge research and its transfer into applications in the fields of optics, photonics, quantum technology, and photonic systems," said Prof. Holger Hanselka, President of the Fraunhofer-Gesellschaft. "This not only sends a strong signal for Jena as an international beacon of photonics, but also advances Germany's performance as a technology location in these strategically important future technologies."

New electron beam lithography facility for nanostructuring

As part of the celebrations, guests visited two key highlights of the new building: The new electron beam lithography facility and an optical ground station.

Electron beam lithography is a process used to produce particularly fine structures, measuring just a few nanometers, on optical components. The process is required, for example, to manufacture high-performance chips for microelectronics, AI, and quantum computing. It can also be used to produce high-precision measuring instruments for Earth observation and space travel. "As institute, we have made mission-critical contributions to international space programs such as [GAIA](#) and ESA's [Sentinel](#) program, as well as to the [James Webb Space Telescope](#). Our special expertise in micro- and nanostructured optics was particularly important to this endeavor. The new facility, with its globally unique features, will enable us to continue to empower science to conduct excellent research and industry to innovate," explains Prof. Andreas Tünnermann, Director of Fraunhofer IOF.

During the grand opening of the new building, Minister President Voigt and Federal Minister Bär officially commissioned the new electron beam lithography facility. The Free State of Thuringia supported the facility with [12 million euros](#).

New optical ground station for quantum communication

Another unique feature of Fraunhofer IOF is the new optical ground station. Located on the roof of the new building, it will enable researchers in Jena to communicate optically with satellites. This will be used primarily in quantum communication research. Quantum communication is developing new methods for virtually eavesdrop-secure communication in the future.

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"Our optical ground station is the only one of its kind in central Germany. It will help us take the insights we have gained from quantum communication in projects such as the BMFTR-funded [QuNET initiative](#), which has so far focused on ground-based quantum networks, to the next level, namely into space. Our research into satellite-based quantum communication is already helping to lay the foundation for a global quantum network. At Fraunhofer IOF, we want to use the new ground station to become a node in the global communications network of the future and a test center for further research in this field," explains Prof. Tünnermann.

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Steady growth in employees and floor space since 1992

Construction work on the new research building began in 2019. The construction project cost a total of approximately 30 million euros, which was shared equally by the federal and state governments. This is now the third extension to Fraunhofer IOF.

Founded in 1992, Fraunhofer IOF was initially located in the center of Jena, in the so-called "Eulenhäuser" (Owl House) on Schillerstraße. For capacity reasons, the institute moved to a new building on the Beutenberg Campus in 2002. The first extension followed in 2011. In 2017, the Fiber Technology Center with fiber drawing tower, which is directly integrated into the building complex, was opened.

To this day, the research institute continues to grow steadily: starting with just under sixty employees, around 500 people now work there, 23% of whom have an international background, passionately working to harness light as a versatile tool for the benefit of society, the economy, and industry.

About Fraunhofer IOF

The Fraunhofer Institute for Applied Optics and Precision Engineering IOF in Jena conducts application-oriented research in the field of photonics and develops innovative optical systems for controlling light—from its generation and manipulation to its application. The institute's range of services covers the entire photonic process chain from opto-mechanical and opto-electronic system design to the production of customer-specific solutions and prototypes. At Fraunhofer IOF, about 500 employees operate an annual research volume of 40 million euros.

For more information about Fraunhofer IOF, please visit: www.iof.fraunhofer.de

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The **Fraunhofer-Gesellschaft**, headquartered in Germany, is one of the world's leading organizations for applied research. It plays a major role in innovation by prioritizing research on cutting-edge technologies and the transfer of results to industry to strengthen Germany's industrial base and for the benefit of society as a whole. Since its founding as a nonprofit organization in 1949, Fraunhofer has held a unique position in the German research and innovation ecosystem. With nearly 32,000 employees across 75 institutes and legally independent research units in Germany, Fraunhofer operates with an annual budget of €3.6 billion, €3.1 billion of which is generated by contract research — Fraunhofer's core business model.