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Max Planck School of Photonics: National Network of Excellence selected by Federal Ministry of Education and Research

The Federal Ministry of Education and Research (BMBF) has called for the implementation of a new network of excellence under the lead of the Fraunhofer Institute of Applied Optics and Precision Engineering (IOF). The Max Planck School of Photonics (MPSP) focusses the key strengths of the German Photonics Community and will support highly skilled young researchers on a world class level. The national network of excellence aims to level the playing field with elite institutions, such as the American Harvard University or the Massachusetts Institute of Technology (MIT) by setting new standards in the research with light.

Photonics has grown into a dynamics science discipline in the last years. Just since 2000 seven Nobel Prizes with direct connections to photonics have been awarded. These include works that have transformed society and economy in a radical manner: optical communication, digital photography, and energy-efficient, environmentally friendly light sources. Only the US and China publish more papers with regards to optics. If counted in relation to each countries GDP, Germany rates first among the ten most influential science nations.

Simultaneously, Photonics is catalysing innovation-driven branches of the economy, such as information technology, aeronautics and space applications, or industrial production. In 2015, the photonics industry, mostly small and medium sized enterprises, did employ more than 130.000 employees. At the same time it contributed roughly 30 billion Euros to Germany's GDP, with a high rate of growth.

The Max Planck School of Photonics (MPSP) has been established as a new research infrastructure, attracting the brightest young researchers: it will leverage on and contribute to the success of photonics in Germany. MPSP is one of three pilot schools that share the goal of defining a new global standard in competitive research with a high degree of societal impact.

"MPSP marks a new level of networking in the photonics community. It pushes the frontiers on cutting edge topics, such as attosecond physics and quantum photonics. The network showcases the photonics community's ability to bridge the borders of disciplines and cross institutional barriers, enabling it to tackle grand challenges in science" contributes Prof. Andreas Tünnermann, founding director of the MPSP,

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director of the Fraunhofer-Institute of Applied Optics and Precision Engineering IOF and its Center of Excellence in Photonics. Prof. Edgar Weckert, director for the Research with Photons at the German Electron Synchrotron (DESY) facility in Hamburg adds, that the Max Planck School of Photonics “is an excellent platform, to showcase the potential of collaboration, blending in perfectly with the communities push for the implementation of a National Photonics Labs research infrastructure.” Prof. Gerd Leuchs, also founding director of MPSP and director of the Max-Planck-Institute for the Science of Light in Erlangen explains: “The members of the Max Planck School of Photonics embark upon the common quest, to understand and control light on all scales, using it, to develop solution for a large scales of societal challenges.”

Prof. Reimund Neugebauer, President of the Fraunhofer-Society adds: “The Max Planck Schools are an excellent program, to attract the Best of the Best, creating bridges between the disciplines. Therefore the Fraunhofer-Society will not only support MPSP with 4 Million Euros but it will also continue to participate in this program with high intensity.”

New Chapter in the Success Story in Photonics

The MPSP connects existing national and international graduate programs, such as the International Max Planck Schools (IMPRS), the DFG Graduate Schools, the PIER Helmholtz Graduate Schools as well as the graduate school of the federal Excellence Initiative. The consortium aims to connect all major and innovative communities within Photonics to an interdisciplinary cluster.

The topical diversity is reflected in the seven universities and nine research institutions, which participate in MPSP. “Our consortium does not only present the Champions-League of Germany’s Photon Science, but also its tradition to implement visionary breakthrough science in joint projects across institutional borders.” Prof. Andreas Tünnermann adds.

The new network is coordinated by the Abbe School of Photonics, based at the Friedrich-Schiller-University of Jena, where it has become one of the world’s prime locations for education on Photonics. “Our two international Master Degrees show, that Germany is a highly attractive location for research-oriented education in Photonics, on an internationally excellent level” is noted by Prof. Walter Rosenthal, President of the University of Jena. Thuringia’s Minister Economy, Science and the Digital Society Wolfgang Tiefensee elaborates: “This success is based, in particular, on the prolific cooperation between university-based and non-university research facilities as well as the Photonics industry. MPSP will expand on this success on a national level with regards to research and research oriented training“.

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The Max Planck School of Photonics is supported by the Federal Ministry of Education and Research with a sum of 15 million Euros and by the Fraunhofer-Society with an additional support of 4 million Euros.

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About our Partners

The partners of the Max Planck School of Photonics are based in seven locations in Germany. They represent the University of Hamburg, the Georg-August-University Göttingen (GAU), the Rheinisch-Westfälisch Technische Hochschule Aachen (RWTH), the Friedrich Schiller University Jena (FSU), the Friedrich-Alexander-University Erlangen-Nuremberg (FAU), the Karlsruhe Institute of Technology (KIT) and the Ludwig-Maximilians-University Munich (LMU) and thus a large share of the excellence of German university-based photonics research. With the Fraunhofer Institute for Applied Optics and Precision Engineering IOF, the Fraunhofer Institute for Laser Technology ILT, the Max Planck Institute for Biophysical Chemistry (BPC), the Max Planck Institute for the Science of Light (MPL), the Max Planck Institute of Quantum Optics (MPQ), the Deutsches Elektronen-Synchrotron (DESY), the Helmholtz Centre for Heavy Ion Research Institute Jena (GSI HIJ) and the Leibniz Institute of Photonic Technology (IPHT) it also represents the impact of all the four big German Research Societies.



Partners and locations of the Max Planck School of Photonics.

Die **Fraunhofer-Gesellschaft** ist die führende Organisation für angewandte Forschung in Europa. Unter ihrem Dach arbeiten 67 Institute und Forschungseinrichtungen an Standorten in ganz Deutschland. 24 000 Mitarbeiterinnen und Mitarbeiter bearbeiten das jährliche Forschungsvolumen von mehr als 2,1 Milliarden Euro. Davon fallen über 1,8 Milliarden Euro auf den Leistungsbereich Vertragsforschung. Über 70 Prozent dieses Leistungsbereichs erwirtschaftet die Fraunhofer-Gesellschaft mit Aufträgen aus der Industrie und mit öffentlich finanzierten Forschungsprojekten. Die internationale Zusammenarbeit wird durch Niederlassungen in Europa, Nord- und Südamerika sowie Asien gefördert.