



To Photonics21 Secretariat
via eMail: secretariat@photonics21.org

Dear Photonics21 Secretariat,

We herewith submit the nomination of the following Photonics21 Board of Stakeholders candidate
Fraunhofer Institute for Applied Optics and Precision Engineering / Andreas Tünnermann.

**- Letter of Nomination -
Photonics21 Board of Stakeholders
Election 2025**

Photonics21 Board of Stakeholders - Letter of Nomination

1. Full legal name of the affiliation nominated as BoS Member (candidate's organisation):

Fraunhofer Institute for Applied Optics and Precision Engineering

2. Full contact details of the affiliation (street, postal code, country) nominated as BoS Member and invoice address *(In accordance with the Terms of Reference §5, which the Affiliation acknowledges having received, an Annual Service fee will be invoiced every year during the first quarter to the BoS Member. By signing the present letter, the BoS candidate agrees to pay this Membership Fee. The Fee will be considered an asset of the Photonics 21 AISBL in accordance with its statutes (article 12b).)*

Fraunhofer Institute for Applied Optics and Precision Engineering
Albert-Einstein-Str. 7
D-07745 Jena
Germany

3. Name of the suggested BoS Representative (the personal candidate)

Prof. Dr. Andreas Tünnermann

4. Information about the BoS candidate and the BoS representative

a) Description of the activities and information about the expected contribution and value added the nominated BoS member (candidate's organisation) will bring to the BoS¹

The Fraunhofer Society is the world's largest society for applied research and one of the most innovative global institutions. The Fraunhofer Institute of Applied Optics and Precision Engineering IOF is a world-leading research institute in the research field of applied photonics and well connected within the academic research and industry landscape. It drives technological innovations with and for light, both in fundamental science as well as in applications on numerous commercial markets.

Fraunhofer IOF operates in the tradition of Carl Zeiss, Ernst Abbe and Otto Schott, it acts responsibly and focuses its research on major societal challenges in the energy, sustainability, health, and security. It is supported by an efficient management and organizational structure, as well as by technical support staff, that empower its researchers to conduct the institute's mission as efficient and sustainable, as possible. As part of its role as a connecting entity, Fraunhofer IOF is regularly participating in roadmap and strategy processes and continuously readjusts its strategy according to the demands of its partners, as well as to the developments in photonics and quantum technology. Next to the core business of application-oriented research and connected services including patents and licensing, the innovations developed at the institute drive founding start-ups licensing and patenting models.

¹ The candidate is aware and accepts that according to the Photonics21 Terms of Reference (§ 5 (10) a membership fee - as determined by the General Assembly of the Association - needs to be paid to the Photonics21 association.

Photonics21 Board of Stakeholders - Letter of Nomination

The institute and its members are involved in long-term partnerships with different stakeholders in research, industry, politics, and society. From the direct contact to our customers and partners from global player to start-up company, from ministry to research institutes the Fraunhofer IOF operates close to the changing needs of various markets as production, mobility and space or consumer electronics and adapts the knowledge in the technology transfer processes. This created a treasure of knowledge all over the years, that the Fraunhofer IOF would like to contribute within the Photonics 21 BoS.

The contribution to photonics is also reflected in various prizes, that has been awarded to members of the institutes, among them several ERC grants, the Gottfried-Wilhelm-Leibniz-Prize of the German Research Council, and three times the renowned Future Price of the President of the Federal Republic of Germany.

- b) Description of the activities and information about expected contribution and value added the BoS Representative (candidate / person) will bring to the BoS.

c)

Prof. Dr. Andreas Tünnermann
Identifiers / ORCID 0000-0003-4018-7626
Google Scholar: citations > 70,000; H-Index 127

Andreas Tünnermann was born on June 10, 1963, in Ahnsen, Germany. He studied physics at the Leibniz University Hanover, graduating in 1988. In 1992, he received his doctorate for his work on the interaction of high-intensity laser radiation with matter to generate short-wavelength coherent radiation. In 1997, he completed his habilitation and *venia legendi* in experimental physics for his research on ultra-stable light sources for interferometric gravitational wave detectors. From 1992 to 1997, he headed the Department of Laser Development at the Laser Zentrum Hannover. At the beginning of 1998, he was appointed professor at the Friedrich Schiller University of Jena and director of the Institute of Applied Physics. Since 2003, he serves as director of the Fraunhofer Institute for Applied Optics and Precision Engineering in Jena. Beyond his academic and scientific leadership, Prof. Tünnermann is also actively engaged in regional innovation and economic development. He is co-founder and chairman of the optics cluster OptoNET, which currently has currently 135 members from industry and science, and valued consultant to companies. As a board member of the Industrieclub Thüringen, he contributes to strategic dialogue between science, industry, and policy-makers.

Andreas Tünnermann leads one of the most creative and productive research groups in modern optics and photonics worldwide. His research on the design and fabrication of novel passive and active photonic devices and particularly their application in generating, amplifying, directing, and switching light—has significantly advanced laser technology on a global scale. Breakthroughs on continuous and pulsed high-power fiber lasers operating in the visible and near-infrared spectral ranges have provided new impetus for laser technology worldwide. Recent developments in coherent beam combination pave the way for laser systems in the 1 MW class to address novel applications in basic research and industry. For several years, Andreas Tünnermann has been deeply engaged in translating the results of the second quantum

Photonics21 Board of Stakeholders - Letter of Nomination

revolution into real-world applications for economic benefit. One focus of his research is on identifying quantum added value in the fields of computing, communication, and imaging.

Well over 500 publications in renowned international journals, which have been cited more than 70,000 times, impressively demonstrate the importance of his research. Andreas Tünnermann is the initiator of the international graduate schools Abbe School of Photonics and the Max Planck School of Photonics in Jena. Prof. Tünnermann is the initiator and driving force behind two internationally renowned graduate schools: the Abbe School of Photonics (ASP) and the Max Planck School of Photonics (MPSP). The ASP, based in Jena, has significantly contributed to the internationalization of photonics education in the region. Through its globally oriented curriculum, strategic partnerships, and active recruitment of international students, the ASP has transformed Jena into a vibrant hub for photonics research and education. The MPSP, in turn, is a nationwide excellence initiative that unites leading institutions across Germany to offer an interdisciplinary, research-driven education to outstanding young scientists from around the world. As speaker and mentor, Prof. Tünnermann has played a key role in shaping the MPSP's academic vision and structure. His commitment to fostering international collaboration, promoting technological sovereignty, and cultivating scientific excellence is reflected in the success and growing reputation of both programs.

He has supervised more than 250 bachelor's, master's, and diploma theses in photonics. Since 1998, he has supervised over 100 completed doctoral dissertations in experimental physics. Several alumni of his research group are now professors or hold leading positions in industry. He is a mentor for young scientists and has established an exemplary system for promoting the independent scientific personal development of young scientists through the establishment of junior research groups. A core element of these training measures is the teaching of entrepreneurial thinking. The success of this program is impressively demonstrated by the almost 20 spin-off companies from his institutes in recent years.

Andreas Tünnermann has received numerous prizes and awards throughout his professional career. He has received the Gottfried Wilhelm Leibniz Prize, the most important German science and technology award from the German Research Foundation (DFG), and is the recipient of an ERC grant. He is a recipient of the Order of Merit of the Federal Republic of Germany.

In summary:

Andreas Tünnermann is a distinguished scientist, educator, and science manager with outstanding national, European and worldwide networks. He is a bridge-builder between science and industry, successfully translating fundamental research into application. As director of both the Fraunhofer IOF and the Institute of Applied Physics at Friedrich Schiller University Jena, Prof. Tünnermann represents two institutions that are central to the advancement of photonics in Europe. As member of the Fraunhofer Society he represents the largest non-university research institution in Europe for applied research. The Fraunhofer IOF is one of the continent's leading non-university research institutes in applied optics, known for its comprehensive innovation chain and strong industry partnerships. The Institute of Applied Physics complements this with a deep academic foundation and a clear focus on research and education. The close collaboration between these institutions serves as a model for how scientific

Photonics21 Board of Stakeholders - Letter of Nomination

excellence can be effectively translated into technological innovation and economic impact. Special added value for photonics 21 is expected through his participation in working groups 4, 5 and 7. He will also be able to contribute his experience in the field of training and qualification.