

International Fellow Award of COS for Prof Juergen Czarske (Dresden University of Technology)

Prof Juergen Czarske was awarded the COS International Fellowship at the Photonics Asia conference organized by SPIE (The international society for optics and photonics, Washington, USA) and COS (Chinese Optical Society) in Beijing on Sunday, October 12, at 8:30 a.m. Congratulations were received by Prof. Qihuang Gong, former COS President, former vice President of International Commission for Optics (ICO) and current President of Peking University; Dr. Kent Rochford, CEO of SPIE; and Nobel Laureate Prof. Gerard Mourou (Peking University, École polytechnique Paris, University of Michigan), one of the first COS International Fellows. Prof. Mourou has close links to Dresden also. He has presented a plenary speech at the world congress of ICO.

Prof Juergen Czarske is the director of the center Biomedical Computational Laser Systems (BIOLAS) and the institute of circuits and systems (IEE) of TU Dresden. He is coopted Professor of Physics at TU Dresden, adjunct Professor for Optical Sciences at University of Arizona, Tucson; Guest Professor of SIOM, Shanghai; and Honorary Professor of USST, Shanghai. He is a fellow of EOS, OPTICA, SPIE, IET, IOP, and now also COS. He is elected member of Saxon Academy of Sciences and Scientific Society of Laser Technique (WLT). He has multiple memberships such as Fraunhofer Society, Excellence Cluster Physics of Life, Else Kröner-Fresenius Center for Digital Health and BrainLinks&BrainTools. Prof Czarske's awards include 2019 OPTICA Joseph-Fraunhofer-Award/Robert-M.-Burley-Prize in Optical Engineering (awarded in D.C.) and 2024 SPIE Dennis Gabor Award in Diffractive Optics (awarded in San Diego).

Prof. Juergen Czarske is a visionary innovator whose groundbreaking research has led to important advances in biomedicine with innovative smart 4D microscopes and lensless minimally invasive endoscopes. He has pursued new approaches in information technology using artificial intelligence that improve safety and energy efficiency, for which he recently received a Reinhard Koselleck Excellence Project for Highly Innovative Research from the DFG (German Science Foundation). Furthermore, he has advanced environmental sciences through energy-efficient devices and pollution reduction, for which he was awarded the Berthold Leibinger Prize by Trumpf. Recent successes have been achieved with AI techniques, especially with physics-informed deep learning, particularly for biomedical computational imaging with new modalities and the multimode fiber-based Internet of Things for higher security and data rates. He is working on entangled photons for teleportation and beaming in biomedical 3D imaging, as well as for the quantum internet.

The Chinese Optical Society (COS) is a professional association with over 20,000 individual members, which honored only three International Fellows in 2025. Prof. Gerard Mourou was among the first group of COS International Fellows in 2018. The COS is a member of the International Commission for Optics (ICO), whose mission is to contribute to the international dissemination of knowledge. Prof Juergen Czarske is Vice President of the ICO and served as General Chairman of the world congress ICO-25 in Dresden in September 2022. Participants from 55 countries contributed papers, and three Nobel laureates delivered plenary lectures. The next world of ICO will be in Beijing. The COS also maintains close ties with the European Optical Society (EOS). Prof Juergen Czarske is a Fellow of the EOS and a member of the Board of DGaO, the German branch of the EOS. In 2025, only 7 Fellows and 3 International Fellows were awarded. This represents a quota of less than 0.05% for the 10 Fellows relative to the more than 20,000 members of COS.