

Pressemitteilung**Leibniz-Institut für Photonische Technologien e. V.****Lavinia Meier-Ewert**

19.09.2024

<http://idw-online.de/de/news840003>Personalia, Wettbewerbe / Auszeichnungen
Chemie, Physik / Astronomie
überregional**Wolfgang Kiefer, Pioneer of Light-Based Diagnostics, Awarded at ESULaB 2024 in Jena**

At this year's ESULaB conference in Jena, Professor Dr. Dr. h.c. Wolfgang Kiefer, a leading figure in Raman spectroscopy, was honored with the Lifetime Achievement Award. The award ceremony took place on September 17, 2024, during the "European Symposium on Ultrafast Laser driven Biophotonics" (ESULaB) organized by Leibniz IPHT in cooperation with Coherent.

In his laudatory speech, Professor Dr. Jürgen Popp, scientific director of Leibniz IPHT and a former PhD student of Kiefer, praised his mentor's pioneering contributions to the advancement of Raman spectroscopy. Dr. Peter Vogt, Senior Director of Sales at the laser technology company Coherent, also contributed to the tribute. "Wolfgang Kiefer has not only made significant advancements in Raman spectroscopy, but he has also inspired researchers around the globe," Popp said.

Influential Research in Spectroscopy

Born in Pforzheim, Germany, in 1941, Kiefer studied physics at the Ludwig Maximilian University in Munich, where he earned his doctorate in 1970. After a research stint in Canada, he continued his work at the Max Planck Institute in Stuttgart, laying the groundwork for his pioneering contributions in Raman spectroscopy. In 1988, he accepted a professorship at the Julius Maximilian University of Würzburg, where he remained until his retirement in 2006.

Kiefer's research significantly advanced our understanding of molecular vibrations and enabled real-time observation of chemical reactions. These breakthroughs have been applied in numerous fields, including pharmaceuticals, nanotechnology, and environmental monitoring. His work in time-resolved Raman spectroscopy was particularly groundbreaking, opening new avenues for visualizing molecular dynamics.

By integrating ultrashort pulse laser techniques with advanced spectroscopic methods, Kiefer expanded the boundaries of what is observable at the molecular level. His approaches have had far-reaching implications in areas like photovoltaics and catalysis, where his insights into electron dynamics have led to greater solar cell efficiency and a deeper understanding of surface-based chemical reactions.

A Pioneering Role in Medical Diagnostics

One of Kiefer's early visions was to apply Raman spectroscopy to differentiate between healthy and diseased tissue. This approach is now playing an increasingly important role in medical diagnostics. "Although he didn't conduct biological research himself, Kiefer's work has inspired many who now use Raman technology in biomedicine to diagnose infections and cancer," said Popp, who began his research in Raman biospectroscopy in 2002 after moving from the University of Würzburg to the University of Jena.

Mentor and Guide

In addition to his scientific achievements, Kiefer is remembered as a mentor to many young scientists. "His passion for discovery has left an indelible mark on all of us. He generously shared his knowledge and influenced an entire generation of researchers," Vogt said. Today, Kiefer continues to conduct experiments in his private lab, addressing unresolved questions from his active research career.

Recognized for Lifelong Contributions

Throughout his career, Professor Kiefer has received numerous awards for his contributions to spectroscopy. These include the Raman Lifetime Award at ICORS 2014 in Jena and the Award for Lifetime Contribution to Raman Spectroscopy from the Indian Institute of Science in 2018.

Fostering Collaboration Between Academia and Industry

The ESULaB 2024 conference served as a platform for collaboration between academia and industry, with a focus on the latest breakthroughs in spectroscopy and imaging driven by ultrashort laser pulses to address biophotonic challenges. Key topics included nonlinear imaging techniques, such as SHG/THG microscopy and coherent Raman microscopy for medical diagnostics, high-resolution imaging of biological structures through nonlinear phenomena (e.g., STED microscopy), and the use of EUV/X-ray wavelengths and ultrafast time-resolved spectroscopy to study biological systems, including protein folding dynamics via 2D spectroscopy. A central theme was the transition of new diagnostic and biomedical approaches from research to market and practical application. "ESULaB brings innovative ideas closer to commercialization by connecting researchers with industry partners," Popp said.



Professor Dr. Dr. h.c. Wolfgang Kiefer (center) received the Lifetime Achievement Award at the international ESULaB conference in Jena on Sept. 17, 2024. The laudation was given by Prof. Dr. Jürgen Popp (left, Leibniz-IPHT) and Dr. Peter Vogt (Coherent).
Daniel Siegesmund
Leibniz IPHT