



IMPRS-APS

# INTERNATIONAL MAX PLANCK RESEARCH SCHOOL ON ADVANCED PHOTON SCIENCE

## Research Areas

The IMPRS-APS covers a broad spectrum of research areas within photon science, including:

- Ultrafast laser science, attosecond physics & high-precision spectroscopy
- Laser technologies, including the development of unique light sources
- Biomedical applications, including advanced spectroscopic methods for molecular fingerprinting and biomedical imaging
- Computational physics & data science
- Laser plasma physics & laser particle acceleration

## Program Highlights

- **Interdisciplinary collaboration:** The IMPRS-APS fosters a collaborative environment that encourages students to engage with researchers from various disciplines, including physics, chemistry, biology, and medicine.
- **Cutting-edge facilities:** Students have access to world-class research facilities and resources at MPQ, LMU, TUM, TU Wien, and TU Graz, enabling them to conduct innovative experiments and contribute to ground-breaking discoveries.
- **Comprehensive training:** The IMPRS-APS provides comprehensive training and educational opportunities, including coursework, workshops, and mentoring, to equip students with the necessary skills and knowledge for a successful research career.
- **Career development:** The program is committed to supporting students' career development, offering guidance and resources for both academic and industry career paths.

The International Max Planck Research School on Advanced Photon Science (IMPRS-APS) is a graduate school dedicated to the advancement of photon science, with a particular focus on cutting-edge research and applications of photonics.

Established in 2006 at the Max Planck Institute of Quantum Optics (MPQ) and directed by Nobel Laureate Prof. Dr. Ferenc Krausz, the IMPRS-APS provides a unique and stimulating environment for PhD students who are passionate about exploring the frontiers of light-matter interaction.



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## Student Experience

- **Annual meetings:** The program hosts annual meetings where students can present their research, network with peers and faculty, and foster collaborations.
- **Soft-skills courses:** The IMPRS-APS offers soft-skills courses to help students develop essential skills such as scientific writing, communication, and time management.
- **Special lectures:** Week-long intensive courses (block lectures) are organized every second year to delve deeper into specific topics, providing students with in-depth knowledge and insights from experts in the field.



The IMPRS-APS website (<http://www2.mpg.mpg.de/APS>) is currently being updated. For up-to-date information, please visit the websites of the IMPRS-APS group leaders:

### Ultrafast Laser Science & Attosecond Physics

- [Dr. Nicholas Karpowicz](#) (MPQ)
- [Prof. Jürgen Hauer](#) (TUM)
- [Prof. Peter Hommelhof](#), (LMU)
- [Prof. Martin Schultze](#) (TU Graz)
- [Apl Prof. Dr. Vladislav Yakovlev](#), (MPQ, LMU)

### Biomedical Applications

- [Dr. Mihaela Zigman](#) (LMU)
- [Prof. Katia Parodi](#) (LMU)

### Computational Physics & Data Science

- [Dr. Kosmas Kepesidis](#) (LMU)
- [Apl Prof. Dr. Vladislav Yakovlev](#) (MPQ, LMU)

### Laser Plasma Physics & Particle Acceleration

- [Prof. Jörg Schreiber](#) (LMU)
- [Prof. Stefan Karsch](#) (LMU)

### Laser Technology

- [Dr. Nicholas Karpowicz](#) (MPQ)
- [Dr. Alexander Weigel](#) (MPQ)

### Precision Metrology

- [Prof. Thomas Udem](#) (MPQ, LMU)

If there is a group you are particularly interested in, please do not hesitate to contact the corresponding group leader in addition to submitting your application on <https://www.application.imprs-aps.mpg.de/public>.

