



Hanieh Fattahi

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ACADEMIC EDUCATIONS

- **Group leader**
Max Planck Institute of Quantum Optics, Munich, Germany;
Attosecond division; 2015- onwards.
- **Visiting Scientist**
Oxford University, Oxford, UK;
Chair of Prof. Philipp Kukura; August-December 2017;
Research focus: Time-resolved stimulated Raman and ISCAT microscopy for biological applications.
- **Visiting Scientist**
Konstanz University, Konstanz, Germany;
Chair of Prof. Alfred Leitenstorfer; June 2017;
Research focus: Field-resolved metrology for spectroscopic application.
- **PhD in Physics (summa cum laude / highest distinction)**
Max Planck Institute of Quantum Optics and
Ludwig-Maximilians-Universität, Munich, Germany;
Chair of Prof. Ferenc Krausz; 2008- 2015.
- **Research Assistant**
Sharif University of Technology, Tehran, Iran; 2007- 2008.
- **M.Sc. in Applied Physics**
Sharif University of Technology, Tehran, Iran; 2005- 2007.

APPOINTMENTS

- **Minerva fast-track position of Max Planck Society**
Munich, Germany; 2017-2020.
- **Co-coordinator of the “International Max Planck Research School of Advanced Photon Science” (IMPRS-APS)**
Munich, Germany; since 2016.
- **Fellow of Max Planck Center for Extreme and Quantum Photonics**
Ottawa, Canada; since 2016.

RESEARCH INTERESTS

- Field-resolved stimulated Raman microscopy.
- Synthesis of intense controlled waveforms of laser light.

- Design and development of thin-disk lasers and optical parametric amplifiers.

GRANTS AND AWARDS

- Minerva fast-track scholarship, Max Planck Society, since 2017.
- Research Grant, Max Planck Society, "Attosecond Metrology 2.0", 2016.
- Best PhD thesis award by the publishing company Springer, 2015.
- Scholarship, International Max Planck Research School of Advanced Photon Science, 2008-2012.

RESEARCH EXPERIENCE

- Max Planck Institute of Quantum Optics, Munich, Germany, since 2008:
 - Design and development of field-resolved broadband stimulated Raman spectroscopy and imaging systems
 - Synthesis of intense, controlled waveforms of laser light
 - Design and development of a millijoule-level, visible to mid-infrared, few-cycle optical parametric chirped pulse amplifiers
 - Design and development of coherent, multi-octave super-continuum optical systems
 - Design and development of optical and electronic timing synchronizations
 - Design and development of Yb:YAG, thin-disk, regenerative amplifiers
 - Design and setup of ultra-short pulse measurement techniques
 - Numerical analysis of optical parametric chirped pulse amplifiers
 - Numerical study of materials response in interaction with intense, ultrashort pulses in perturbative regime
- Sharif University of Technology, Tehran, Iran, 2005-2008:
 - Study of the tissues thermal damage during ultrasound surgery
 - Investigation of the distribution of collagen bundle in response to laser irradiation

TEACHING EXPERIENCE

- Photonics II, tutorial, Ludwig Maximilians University, 2017/2018.
- Photonics I, tutorial, Ludwig Maximilians University, 2016/2017.
- Computational Photonics, Ludwig Maximilians University, 2015/2016.
- Electronic Lab, Sharif University of Technology, 2007.

PROFESSIONAL AFFILIATION

- President of European Physical Society's (EPS) Young Mind section of Munich (ALPS), since 2016.
- Member of German Physical Society (DPG), since 2016.
- Young Professional member of Optical Society of America (OSA), since 2015.
- Member of executive committee of Short Wavelength Sources and Attosecond /High Field Physics Technical Group of Optical Society of America (OSA), since 2015.
- Member of Optical Society of America (OSA), since 2009.

PROFESSIONAL ACTIVITIES

- Member of the program committee for the Ultrafast Optics Conference (UFO XI), 2017.
- Co-organizer of a special symposium, CLEO 2016: Ultrafast Dynamics in Solids, June 2016.
- Co-organizer of a special workshop, CLEO 2016: Attosecond Nonlinear Optics, June 2016
- Co-organizer of a joint symposium between Max Planck Institute of Quantum Optics in Munich and Max Planck Institute of Science of Light in Erlangen, April 2016.
- Organizer of trilogy workshops: Future of Ultrashort Pulses, 2015-2017.

PUBLICATIONS

- A. Alismail, H. Wang, J. Brons, **H. Fattahi**, "20 mJ, 1 ps Yb:YAG Thin-disk Regenerative Amplifier," *J. Vis. Exp.* 125, 55717 (2017).
- H. Wang, A. Alismail, G. Barbiero, M. Wendl, **H. Fattahi**, "Cross-polarized, multi-octave supercontinuum generation," *Optics Letters* 42, 2595 (2017).
- A. Alismail, H. Wang, N. Altwaijry, **H. Fattahi**, "Carrier-envelope phase stable, 5.4 μ J, broadband, mid-infrared pulse generation from a 1-ps, Yb:YAG thin-disk laser," *Applied Optics* 56, 4990 (2017).
- G. Vampa, **H. Fattahi**, J. Vučković, and F. Krausz, "Nonlinear optics: Attosecond nanophotonics," *Nature Photonics* 11, 210 (2017).
- T. Nubbemeyer, M. Kaumanns, M. Ueffing, M. Gorjan, A. Alismail, **H. Fattahi**, J. Brons, O. Pronin, H. G. Barros, Zs. Major, T. Metzger, D. Sutter, and F. Krausz, "1 kW, 200 mJ picosecond thin-disk laser system," *Optics Letters* 42, 1381 (2017).
- **H. Fattahi**, H. Wang, A. Alismail, G. Arisholm, V. Pervak, A. Azzeer, and F. Krausz, "Near-PHz-bandwidth, phase-stable continua generated from a Yb:YAG thin-disk amplifier," *Optics Express* 24, 24337 (2016).
- **H. Fattahi**, "Sub-cycle light transients for attosecond, X-ray, four-dimensional imaging," Invited Article, *The Contemporary Physics Journal*, 57, 1 (2016).

- T. Amotchkina, **H. Fattahi**, Yu. A. Pervak, M. Trubetskov, and V. Pervak, "Broadband beamsplitter for high intensity laser applications in the infra-red spectral range," *Optics Express* 24, 16752 (2016).
- A. Sommer, E. M. Bothschafter, S. A. Sato, C. Jakubeit, T. Latka, O. Razskazovskaya, **H. Fattahi**, M. Jobst, W. Schweinberger, V. Shirvanyan, V. S. Yakovlev, R. Kienberger, K. Yabana, N. Karpowicz, M. Schultze and F. Krausz, "Attosecond nonlinear polarization and energy transfer in dielectrics," *Nature* 534, 86 (2016).
- T. Buberl, A. Alismail, H. Wang, N. Karpowicz, and **H. Fattahi**, "Self-compressed, spectral broadening of Yb:YAG thin-disk amplifier," *Optics Express* 24, 10286 (2016).
- **H. Fattahi**, A. Alismail, H. Wang, J. Brons, O. Pronin, T. Buberl, L. Vámos, G. Arisholm, A. M. Azzeer, and F. Krausz, "High-power, 1-ps, all Yb:YAG thin-disk regenerative amplifier," *Optics Letters* 41, 1126 (2016).
- **H. Fattahi**, A. Schwarz, X. Geng, S. Keiber, D.E. Kim, F. Krausz, and N. Karpowicz, "Decoupling chaotic amplification and nonlinear phase in high-energy thin-disk amplifiers for stable OPCPA pumping," *Optics Express* 22, 31440 (2014).
- **H. Fattahi**, H. Barros, M. Gorjan, T. Nubbemeyer, B. Alsaif, C. Teisset, M. Schultze, S. Prinz, M. Haefner, M. Ueffing, A. Alismail, L. Vámos, A. Schwarz, O. Pronin, J. Brons, X. Geng, G. Arisholm, M. Ciappina, V. Yakovlev, D.E. Kim, A. M. Azzeer, N. Karpowicz, D. Sutter, Z. Major, T. Metzger, and F. Krausz, "Third-generation femtosecond technology," *Optica* 1, 45 (2014).
- **H. Fattahi**, A. Schwarz, S. Keiber, and N. Karpowicz, "Efficient, octave-spanning difference-frequency generation using few-cycle pulses in simple collinear geometry," *Optics Letters* 20, 4216 (2013).
- Y. Deng, A. Schwarz, **H. Fattahi**, M. Ueffing, X. Gu, M. Ossiander, T. Metzger, V. Pervak, H. Ishizuki, T. Taira, T. Kobayashi, G. Markus, F. Krausz, R. Kienberger, and N. Karpowicz, "Carrier-envelope-phase-stable, 1.2 mJ, 1.5 cycle laser pulses at 2.1 μm ," *Optics Letters* 37, 4973 (2012).
- **H. Fattahi**, C. Y. Teisset, O. Pronin, A. Sugita, R. Graf, V. Pervak, X. Gu, T. Metzger, Z. Major, F. Krausz, and A. Apolonski, "Pump-seed synchronization for MHz repetition rate, high-power optical parametric chirped pulse amplification," *Optics Express* 20, 9833 (2012).
- A. Schwarz, M. Ueffing, Y. Deng, X. Gu, **H. Fattahi**, T. Metzger, M. Ossiander, F. Krausz, and R. Kienberger, "Active stabilization for optically synchronized optical parametric chirped pulse amplification," *Optics Express* 20, 5557 (2012).
- R. Tahvildari, **H. Fattahi**, and A. Amjadi "Thermal analysis of different tips for various operating modes of phacoemulsification system," *Journal of Biomedical Science and Engineering* 03, 727 (2010).

BOOK AND BOOK CHAPTERS

- **H. Fattahi**, "High energy and short pulse lasers," ISBN 978-953-51-4758-9, (2016).

- **H. Fattahi**, "Third-generation femtosecond technology," ISBN 978-3-319-20024-8, (2015).
- R. Tahvildari, **H. Fattahi**, A. Amjadi, "Cataract Surgery", ISBN 978-953-51-0975-4, (2013).

INVITED TALKS

- "High energy, sub-cycle pulses at PHz frequency," *Ultra Fast Optics conference (UFO XI), Wyoming, USA, October 2017.*
- "Towards attosecond pulse generation in the X-ray regime," *Frontiers In Optics (FIO), Rochester, USA, October 2016.*
- "Third-generation femtosecond technology," *CLEO: Science and Innovations, San Jose, USA, May 2015.*

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6.9.2017, Munich, Germany