

DANIEL HAMMERLAND

+41 (76) 830 92 49 ♦ Zürich, Switzerland
danielhammerland@gmail.com

EDUCATION

ETH Zürich, Laboratory for Physical Chemistry 2018 - present
Doctor of Philosophy (In progress)

- Adapted an infrared-based Attosecond Interferometry technique to operate with a UV-light source and successfully doubled its sensitivity, improved resolution by 50%, and improved signal-to-noise by nearly an order of magnitude
- Modified a time-resolved photoelectron experiment to diversify the samples it could study, improve its resolution, and simplify its alignment and operation
- Developed a mid-scan sample swap technique that allowed for attosecond electron dynamics in different systems to be compared directly, while preserving data quality of each system

University of Denver, Department of Physics 2016 - 2018
Master of Science, GPA: 4.0

Thesis: Developing a Femtosecond Stimulated Raman Spectroscopy Experiment for Solid State Materials

- Designed and constructed a Femtosecond Stimulated Raman Spectroscopy beamline for 2D materials
- Fabricated 2D materials and characterized them with a home-built Raman microscopy setup

University of Colorado, Boulder, Department of Physics 2012 - 2016
Bachelor of Arts, GPA: 3.7, graduated Magna cum Laude

Thesis: Boundary effects in Van der Waals Materials

- Applied Raman microscopy, atomic force microscopy, and scanning near-field optical microscopy to investigate surface plasmons and optically-induced phase transitions in 2D materials

SELECT POSTERS AND PRESENTATIONS

Attosecond Interferometry Using the 100 kHz HR1 Laser at ELI-ALPS
ELI-ALPS Users Meeting - Invited Speaker - Szeged, Hungary 9 November 2019

400 nm-based Attosecond Interferometry Reveals Nuclear Motion Effects in O₂
IWP-RIXS - Poster - Sendai, Japan 15-19 November 2022

400 nm-based Attosecond Interferometry Captures Correlation-Induced Shape Resonance in O₂
ATTO IX - Oral Presentation - Jeju-do, Korea 9-14 July 2023

PUBLICATIONS

D. Hammerland and P. Zhang *et al.* Reconstruction of attosecond pulses in the presence of interfering dressing fields using a 100 kHz laser system at ELI-ALPS. *J. Phys. B: At. Mol. Opt. Phys.* **52** 23LT01 (2019).

D. Hammerland et al. Bond-Length dependence of attosecond ionization delays in O₂ arising from electron correlation to a shape resonance. *Sci. Adv.* **10**, ead13810 (2024).

EXTRA-CURRICULAR ACTIVITIES

General outdoorsing enthusiast. Avid mountain biker. Judicious rock and ice climber. Wild flower cataloguer. Wanderer of both life-style and mountain hiking trails. Growing-more-confident skier. Fearful kayaker.