

The Ultrafast Dynamics Group (Prof. Steven Johnson) in the Department of Physics of ETH Zürich has an open PhD position.

PhD position in ultrafast dynamics of Mott insulators

The aim of this project is to investigate ultrafast dynamics in Mott insulators, in particular GaTa_4Se_8 . A volatile drop in electrical resistivity can be triggered in these materials either following the application of an electric field for a few tens of microseconds or, crucially, after exposure to an ultrashort THz pulse. Our goal is to characterize the resulting low resistivity phase as well as the nature of the ultrafast transition leading to it, using a combination of ultrafast spectroscopy techniques in the THz, mid-infrared and x-ray frequency ranges.

This project will be based in Prof. Steven Johnson's Ultrafast Dynamics Group at ETH Zürich and conducted under Dr. Elsa Abreu's leadership. X-ray measurements will take place at large scale facilities both in Switzerland and abroad.

The ideal candidate holds a Master's degree preferably in physics, alternatively in material sciences. A strong background in condensed matter physics is required, previous experience with ultrafast optical or x-ray experiments is a definite plus. The candidate must demonstrate proficiency in oral and written English and must be enthusiastic, creative and self-motivated. This PhD position is full time, with possible starting dates from September 2022 onwards.

We look forward to receiving your online application including a letter of motivation, a brief statement of research interests, copies of Bachelor and Master's degree transcripts, a CV and the names and contact information of at least two academic referees. Please note that we exclusively accept applications submitted through our online application portal. Applications via email or postal services will not be considered.

For further information regarding the position and the group please contact Elsa Abreu at elsabreu@phys.ethz.ch (no applications) and/or visit our website, www.udg.ethz.ch.