Contribution ID: **67** Type: **not specified**

Electromagnetic and atomic processes for nuclear isomer excitation in optical laser-generated plasma

Isomers, or long-lived nuclear excited states, are of significant interest in both fundamental and applied physics. For example, understanding the atomic and electromagnetic processes that lead to nuclear excitation is crucial from the study of nucleosynthesis in astrophysical plasmas to the development of high-density energy storage applications.

This study focuses on the design and implementation of an experimental setup for generating high-density plasma using a femtosecond pulsed laser. With this setup, we seek to investigate various atomic and electromagnetic processes that are expected to occur in such high-density plasma environments, some of which may have never been observed experimentally or have only been observed under specific conditions but not in a plasma scenario.

The experimental setup presented allows for the controlled and repeatable creation of high-density plasma from a solid metallic target, making it possible, in principle, to study the rate of occurrence of these processes.

Presenting Author

Simone Gargiulo

Presenting Author Affiliation

Laboratory for Ultrafast Microscopy and Electron Scattering, EPFL

Presenting Author Gender

Male

Country

Switzerland

Presenting Author Email Address

simone.gargiulo@epfl.ch

Primary author: GARGIULO, Simone (EPFL)

Co-authors: Prof. CARBONE, Fabrizio (EPFL); Dr MADAN, Ivan (EPFL)

Presenter: GARGIULO, Simone (EPFL)

Session Classification: Poster Session

Track Classification: High Energy Density Plasmas and Powerful Light Sources