

## Post-doctoral position (two years) at the ETH, Zurich: Laser spectroscopy of Exotic Atoms

### Project background

We are part of the CREMA collaboration at PSI aiming at the measurement of the hyperfine splitting in muonic hydrogen, an atom formed by a muon and a proton, to investigate properties of the proton structure and testing fundamental theories such as quantum electrodynamics. This PostDoc project will be devoted to the completion of the laser system needed for the spectroscopy experiment and to the measurement of the hyperfine splitting.

### Job description

- Complete the ongoing development of a complex laser systems formed by single-frequency high-power thin-disk lasers, optical parametric oscillators, optical parametric amplifiers in the near- and mid-infrared region and an optical multi-pass cavities.
- Integration of the laser system into the larger experimental setup for the measurement of the laser spectroscopy of muonic hydrogen.
- Participation to data taking at the accelerator facility and related data analysis.
- Dissemination of the results in peer reviewed articles and at conferences.
- Supervision of graduate/undergraduate students at ETH Zurich and participation to teaching activities.
- Participation to ongoing developments of laser technologies for industrial applications.

### Your profile

- PhD degree in physics or in related fields.
- Experienced with laser development and/or laser spectroscopy techniques.
- Preferably some knowledge of nonlinear optics.
- Experienced with running a complex laboratory environment.
- Ability to work in an international and multidisciplinary environment.
- Good command of English.

### We offer

This project offers a multidisciplinary environment spanning from fundamental research in particle and atomic physics to applied cutting-edge laser technologies. The project will allow development of scientific, technical, organisational, team building and educational skills. The experience won will be optimal for careers, both, in academia and in industry. The postdoctoral work will be carried out in the “Precision Physics at Low Energy” group at the ETH, Zurich, and the “Laboratory for Particle Physics” at the Paul Scherrer Institute (PSI).

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<https://www.psi.ch/en/ltp/hypermu>

<https://edm.ethz.ch/research/laser-spectroscopy-of-muonic-atoms.html>