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A Versatile Setup for Resonant Ionisation Spectroscopy of Atomic Species

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Resonant Ionisation Spectroscopy (RIS) is of growing interest as tool in the production and quality assurance of isotopes for medical applications. It is also a tool for precision investigation of exotic nuclei in many large nuclear physics facilities such as CERN. We report on the development of a versatile setup for tunable laser based atomic spectroscopy that will be used to investigate resonant ionisation schemes for different atoms and optimise the experimental parameters. RIS is a multi-step process of which the first 1 or 2 photons are resonant, and the last photon ionises the atom. Different spectroscopic methods will be investigated for characterization of the different steps: optogalvanic spectroscopy in a hollow cathode lamp, acoustic detection, absorption spectroscopy and laser induced (or reduced) fluorescence spectroscopy. The planned setup and preliminary results are presented.

Apply to be
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Yes

Level for award
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MSc

Main supervisor (name and email)
and his / her institution

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