IV School on Light and Cold Atoms

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ICTP-SAIFR, São Paulo, Brazil

Venue: ICTP-SAIFR/IFT-UNESP
Zoom ID: 843 3376 6175
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https://www.ictp-saifr.org/slca2025/

- **Lima, Caio César Rocha** (IFSC, Brazil): *Magneto-optical trapping of Dysprosium in alternative configuration*

Magneto-optical traps are among the main tools in Atomic and Molecular Physics, making use of the radiation pressure force to confine and cool atoms of various species. Recently, it has been demonstrated that magneto-optical traps operating on narrow-linewidth transitions can be implemented without the beam aligned along the direction of gravity. These are known as five-beam traps, in contrast to the traditional six-beam configuration of conventional magneto-optical traps. Such trapping is only possible because the radiation pressure force in narrow- line transitions is comparable to the gravitational force. In this doctoral project, we aim to advance in this direction by proposing magneto-optical traps based on four-beam and three- beam configurations for Dysprosium atoms. The present project will develop all the necessary steps for achieving trapping, from the establishment of the atomic source, through the laser systems, to the trapping itself and the characterization of the trap.