

IAF MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Microgravity Experiments from Sub-Orbital to Orbital Platforms (3)

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SECAMP - STUDENT EXPERIMENTS WITH COLD ATOMS ON MICRO- AND HYPERGRAVITY
PLATFORMS**Abstract**

SECAMP is a student project recently started at the University of Bremen. In this project the students of the engineering department will learn to design a product according to the needs of their customer represented by the teaching university staff. In this case technical requirements are defined from a science case defined by the customer and the targeted platforms to operate on. During the 3 semester project the design is elaborated, realized and tested. The entire project is managed by students and only supported by university staff. This gives the participants an insight in space project management and various engineering specialties.

The scope of the project is to design and build a payload for student experiments with cold atoms on multiple microgravity and hyper-gravity platforms. The apparatus shall allow the generation of a molasses of Rubidium-87 atoms and observe it through fluorescence imaging in three perpendicular axes. This will enable detecting the movement of the atoms due to (residual) accelerations once the magneto-optical trap is switched off. As such the setup will form a simple accelerometer.

The apparatus shall be designed to be operated on hyperbolic flights, the drop tower, sounding rockets and centrifuges allowing the participants to apply for the manifold national and European student programs on these platforms.

This talk will give an overview on the current design and the requirements imposed by the different platforms. Moreover the student team and their role in the project will be presented and the current status of the project will be highlighted.