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## Internship or final project of Master degree

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Fabrication/Characterization of an array of coupled cantilevers for detection and quantification of small masses

**Project:** Arrays of mechanically coupled structures for detection of small masses

**Laboratory:** Femto-ST Institute – Département Microsystèmes Nanosystèmes Sciences et Systèmes / Département Mécanique Appliquée

**Receiving Institution:** University of Bourgogne Franche-Comté – Faculty of Sciences and Techniques - 16 route de Gray 25000 Besançon

**Time span:** 6 months ideally starting in September

**Field:** Fabrication and characterization of microsystems

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**Salary:** 529.20 €/month for 35h per week (average value)

### Goals of the study:

The goal of the internship is the fabrication/characterization of weakly coupled mechanical structures to make biosensors with a high sensitivity. The geometry of the mechanical structures will be cantilevers. These weakly coupled mechanical structures involve a phenomenon known as mode localization. The interest of the phenomenon lies in its high sensitivity, thought to be two orders of magnitude higher than a detection based on the frequency shift.

The two main goals of the internship are:

- Make the layout and the fabrication in clean room of the cantilever type structures,
- Characterize the structures to highlight the expected performances of the mode localization.

**Required skills:** Knowledge of a layout software and first experience in clean room required.