Microlens arrays for security applications

Master project / Semester project

(Section: microengineering, materials sciences, electrical engineering)

To protect official documents, anti-counterfeiters must constantly implement new technologies. In this research, micro-fabrication technologies are used to obtain visually-appealing moirés. Your goal will be to fabricate micro-lens arrays and metallic patterns to obtain these new moiré effects. Several new moiré types are ready to be fabricated, but I’m open to any suggestion!

Work description:

- Design and fabrication of lens arrays: photolithography; thermal reflow; UV imprinting or ion-beam etching
- Characterisation: mechanical or optical profiling
- Moiré fabrication: use the optimal fabrication parameters to create new moiré effects: Circuit simulation, Multiphysics simulation (COMSOL)
- Mechanical vibration system setup
- Electrical measurement

Contact: Thomas Walger (thomas.walger@epfl.ch)