**Name of the Host Laboratory**  
Laboratory of Irradiated Solids, Ecole Polytechnique

**Website of the Host Laboratory**  
https://portail.polytechnique.edu/lsi/en

**Research Group**  
PC-NANO

**Internship Supervisor**  
Vasily Temnov, in collaboration with Paolo Vavassori, NanoGUNE St. Sebastian (Spain)

**Internship Subject**  
Nanomagnetism in fs-laser produced magnetic nanostructures

**Student’s level**  
- Advanced Undergraduate Students (3rd or 4th year)
- Master’s students (1st or 2nd year)
- PhD students

**Proposed Duration**  
- 3 months
- 4 months
- 5 months
- 6 months

**Prerequisites**  
This internship requires good understanding of school physics, classical electrodynamics, wave physics and elementary programming skills. It will involve Labview-automated optical measurements, Matlab-automated data analysis, Latex-report and paper writing, MS-office based conference presentations.

**Internship description (max. 15 lines)**  
This internship will be focused on magneto-photonic investigations [1] of novel magnetic nanostructures with single femtosecond laser pulses [2]. The student will be asked to master the (operational) Labview-automated single-shot nanofabrication setup to produce various magnetic nanostructures and apply modern optical interferometric, magneto-photonic techniques to characterize their morphological and physical properties. In the later stage state-of-the-art scanning time-resolved magneto-optical measurements will be used to follow the dynamics of high-frequency exchange magnons magnetic in these structures and investigate their coupling to acoustic phonons.

The internship will be performed jointly at the LSI, Ecole Polytechnique, IP Paris in Palaiseau at the nanoGUNE St. Sebastian (Spain), providing a unique possibility for the student to acquire experience in international collaborations with leading researchers in the field of (ultrafast) magneto-photonics. The
The results of this internship project will be disseminated in a series of publications in international conferences and high-impact journals.

References:


The boxes marked with cross implies eligible