

INSD NanoScience Seminar (No.22)

Date and Time: **Tuesday, August 1st, 2017, 16:50-18:20**

Place: **Room 305 INSD Seminar Room, Interdisciplinary
Research Building 3rd floor, Toyonaka Campus**

Title: **Ultrafast magnetization dynamics
in ferromagnetic semiconductors**

Lecturer: Dr. Catherine Gourdon

*CNRS, Institut des NanoSciences de Paris,
UPMC–Université Paris VI, France*



Abstract:

Magnetic media are widely used for information storage. Bits are encoded in the magnetization orientation which is most often controlled by a magnetic field. The investigation of magnetization manipulation by alternative techniques, faster and more local such as laser pulses for instance, is actively pursued. The relevance of ferromagnetic semiconductors like (Ga,Mn)As, as a test-bench material for investigating laser-induced ultrafast magnetization dynamics, will be presented. In such ferromagnetic materials the excitation of magnetization precession can be thoroughly described owing to its complex magnetic anisotropy. We will show how the magnetization trajectory can be fully reconstructed using two different magneto-optical effects. Unexpectedly spin waves with different rotation directions are detected. The mystery of these counter-rotating spin waves will be solved by accurately modeling the optical detection of magnetization dynamics in weakly absorbing materials.

Contact Person: Prof. T. Itoh, Institute for NanoScience Design,
E-mail: itoh@insd.osaka-u.ac.jp