

DRF: Thesis SL-DRF-19-0955

## RESEARCH FIELD

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Solid state physics, surfaces and interfaces / Physique de l'état condensé, chimie et nanosciences

## TITLE

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Magnetization dynamics of nanostructures in strongly out-of-equilibrium regimes

## ABSTRACT

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This thesis aims at investigating, understanding and controlling the linear and nonlinear regimes of magnetization dynamics in individual nanostructures made of magnetic materials with very weak damping. An original near field microscopy technique developed in the host laboratory to detect the spin dynamics at the nanoscale will be employed to perform experiments, and analytical tools as well as micromagnetic simulations will be used for their interpretation. This work will take place in the framework of an ANR project whose goal is to demonstrate the manipulation of high amplitude coherent spin waves in devices combining concepts of magnonics and spintronics.

Keywords: magnetization dynamics; nanomagnetism; spintronics; magnonics; nonlinear dynamical systems

Methods: magnetic force microscopy; high frequency techniques; micromagnetic simulations

## LOCATION

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Institut rayonnement et matière de Saclay  
Service de Physique de l'Etat Condensé  
Laboratoire Nano-Magnétisme et Oxydes  
Place: Saclay  
Start date of the thesis: 01/10/2019

## CONTACT PERSON

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Grégoire de Loubens  
CEA  
DRF/IRAMIS/SPEC/LNO  
CEA-Saclay  
Bât 772 Orme des Merisiers  
F-91191 Gif-Sur-Yvette  
Phone number: +33 1 69 08 71 60  
Email: [gregoire.deloubens@cea.fr](mailto:gregoire.deloubens@cea.fr)

## UNIVERSITY / GRADUATE SCHOOL

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Paris-Saclay  
Physique en Île-de-France (EDPIF)

## FIND OUT MORE

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<http://iramis.cea.fr/Pisp/gregoire.deloubens>

<https://www.speclno.org>

## THESIS SUPERVISOR

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Grégoire de Loubens

CEA

DRF/IRAMIS/SPEC/LNO

CEA-Saclay

Bât 772 Orme des Merisiers

F-91191 Gif-Sur-Yvette