

Postdoctoral position:**'Ultrafast nonthermal Magnetization switching'**

University Name: [Le Mans Université](https://www.univ-lemans.fr), Avenue Olivier Messiaen, 72085 Le Mans

Laboratory Name: [Institut des Molécules et Matériaux du Mans](https://www.immm.fr), Bd Charles Nicolle, 72000 Le Mans

Supervisor: Marwan Deb

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Switching the magnetization at the fastest speed and with the lowest energy is one of the hottest topics in modern magnetism. Achieving this requires a deep understanding of the interactions between spin, electron, and lattice, as well as their response to external stimuli. This challenge has driven the search for new approaches to control the spin and explore promising new materials.

The postdoctoral position aims to investigate the ultrafast nonthermal magnetization switching in photoactive transparent magnets using femtosecond laser pulses. The research will focus on a variety of novel ferrimagnetic and antiferromagnetic magnetic oxide systems, which are particularly suitable for nonthermal laser-induced magnetization switching. Additionally, the project will explore the effects of several fundamental parameters such as magnetic anisotropy, film thickness, as well as the size and shape of micro- and nanostructures on switching speed and energy efficiency.

The postdoc will be responsible for static magnetic characterization and conducting ultrafast pump-probe experiments.

Candidate Profile:

The candidate must hold Ph.D. in physics, with a strong background in magnetism and familiarity with ultrafast optics. The successful candidate will join the Nanomagnetism and Modeling Team at the Institut des Molécules et Matériaux du Mans (IMMM).

How to apply:

Candidates are invited to send a full CV and a motivation letter to Marwan Deb.
(marwan.deb@univ-lemans.fr).

Conditions:

Deadline for application: until the position is filled

Start date: March/April 2025

Contract duration: 18 months, with a possible one-year extension

Salary: ~40 k€ (yearly, gross)