

Target audience: Master or Bachelor thesis Project title: New schemes for magnetic field-free magnetization switching

Efficient current-induced magnetization control is essential for the next-generation data storage and computation devices. However, this often requires the assistance of applied magnetic fields, which hinder their deployment in the real devices.

Goals: The aim of this project is to develop new sample preparation protocols to enable efficient magnetization switching. The student will grow magnetic films, which will subsequently be patterned into conduits. The magnetic properties of these films will be selectively modified to achieve efficient field-free magnetization switching.

<u>Tasks:</u>

- Deposit magnetic thin films
- Fabricate magnetic nanowires by lithography
- Characterize magnetic properties using magneto-optical Kerr effect
- Design and pattern gradients of magnetic properties
- Quantify critical currents required for magnetization switching

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