

Fellowship for a 4-year PhD position in the field of Quantum Technology

Electrically switchable magnetic media for tunable control of quantum states

A PhD position is available at the University of Strasbourg, with planned stay at the Helmholtz-Zentrum Dresden – Rossendorf, in the field of nanomagnetism. We propose to manufacture planar magnetic substrates with perpendicular magnetization configurations that can be reversely switched electrically and magnetically, at engineered positions controlled on the nanoscale by He ion irradiation, with a resolution not exceeding a few nm using scanning ion microscopy. This ultra-fast switchable array will open the possibility to explore the effect of magnetic field on nearby electronic states under unprecedented large intensity and short time scales.

Our goal is to reveal how magnetic field control, and more generally the research field of spin electronics, can impact quantum states control, by studying charge transfer and energy levels of collective quantum states under magnetic field. More specifically, we propose to investigate how magnetic field influences charge transport¹ and spectroscopy features.² of polaritonic collective states.

1. *Conductivity in Organic Semiconductors Hybridized with the Vacuum Field*, E. Orgiu et al., Nat. Mater. **14**, 1123-1129 (2015)
2. *The magnetoelectrochemical switch*, P. Lunca Popa et al., Proc. Nation. Acad. Sciences USA **111**, 10433-10437, (2014)

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More information on the eligibility criteria, the application and the process are available on <https://www.eucor-uni.org/en/qustec/> . **If interested, it is mandatory to download your application on the website.**