



# Ph.D. position in spintronics

– Extension of application deadline –

Spintronics uses electron spin to process information, going beyond traditional electronics. It encodes data using both charge and spin, creating devices such as spin valves with reduced power consumption and increased processing speed. Researchers are exploring materials and combining layers to manipulate spin orientations, driving advances in computing and memory as an interdisciplinary field combining physics, materials science and electrical engineering.<sup>[1-4]</sup>

We are currently looking for a **Ph.D. candidate** who is interested in related research on spintronics. The position will be based in **Prof. Stuart Parkin's** Department *Nanosystems from Ions, Spins, and Electrons (NISE)* at the **Max Planck Institute of Microstructure Physics, Halle (Saale), Germany** focusing on research in spintronic, atomically engineered materials and topological materials.

## YOUR TASKS

The candidate will learn to perform the following tasks:

- Develop and optimize recipes to deposit functional thin films with cutting-edge integrated systems;
- Investigate related deposition mechanisms with in-situ analysis tools;
- Design, fabrication, and performance measurements of devices in collaboration with other colleagues.

## YOUR PROFILE

The candidate is expected to develop in-depth knowledge about thin film deposition and gain insight into the deposition mechanism by using in-situ measurements, as well as to apply this knowledge to the successful development and measurement of innovative, high-performant devices. The candidate should be highly creative, proactive, self-motivated, and capable of independent work beyond state-of-the-art objectives. Active participation and engagement in the research activities of the group are highly desirable.

We seek candidates with:

- A background in Chemistry, Materials Science, or Physics (Master's degree or equivalent), knowledge in magnetism, spintronics or solid-state physics is desirable;
- Experience in spintronic device preparation and measurement is desirable, e.g. electron transport or MOKE;
- Knowledge of thin film deposition, characterization, and measurement is beneficial, e.g. ALD, CVD, PLD, sputtering, or MBE.

## WE OFFER

- Access to state-of-the-art facilities for materials growth, device preparation, and assessment;
- An open and engaging working environment addressing some of the most impactful problems in the field with the freedom to contribute your ideas to solve high-impact problems;
- Schedule flexibility;
- Remuneration amounting to 65% EG13 TVöD-Bund.

All necessary training will be carried out after admission. The starting date is flexible.

## YOUR APPLICATION

- For applications and any other questions, please email [michael.strauch@mpi-halle.mpg.de](mailto:michael.strauch@mpi-halle.mpg.de) with reference to job code **Spin-PhD-2024** including CV, motivation letter, and two academic reference letters **before 31.05.2024**.
- The Max Planck Institute of Microstructure Physics gives priority to applications from severely disabled candidates with equivalent qualifications. Furthermore, we strive to increase the proportion of female employees and therefore specifically encourage women to apply.
- For more information please visit <https://www.mpi-halle.mpg.de/>.

## References

- [1] Rong Chen et al 2020 Int. J. Extrem. Manuf. 2 022002
- [2] V. Cremers, R. L. Puurunen, J. Dendooven, Appl. Phys. Rev. 2019, 6, 021302.
- [3] H. Zhang,... S. Parkin, R. B. Wehrspohn, Angew. Chemie - Int. Ed. 2020, 59, 17172.
- [4] Parkin, S. S. P., Hayashi, M. & Thomas, L., Science 320, 190–194 (2008).