



## PhD student in Plasma / Thin Films / Surface Science interactions for magnetic nuclear fusion devices

The University of Basel invites applications for a 4-year PhD position fully funded and focused on experimental plasma cleaning for optical diagnostic systems in future nuclear fusion facilities such as ITER. The first mirrors will be crucial in numerous ITER optical diagnostic systems. The deposition of material eroded from the tokamak wall can severely degrade the reflectivity of the first mirrors. Plasma cleaning using radio-frequency capacitively coupled plasmas is currently considered the most promising in-situ cleaning technique. However, this technique has not been validated with magnetised plasmas, which is crucial in fusion tokamaks.

This 4-year PhD aims to study how various factors like electrode impedance, magnetic field effects, electrode erosion, and surface characteristics impact plasma cleaning processes. The project will involve operating plasma devices, using and developing plasma diagnostic techniques (e.g., Langmuir probes, Retarding Field Analysers), and analysing surface properties post-cleaning.

### Your profile

We seek a highly motivated individual who enjoys working in a small interdisciplinary team of scientists with different backgrounds. A master's degree or equivalent diploma in plasma, materials science, physics, nanoscale science, or a related field is expected. Experience in plasma diagnostics, plasma physics, thin film characterisation, or surface science is highly desirable but not strictly mandatory if compensated by strong motivation and the willingness to learn.

### Position Details

The position is currently available and has a planned duration of 4 years. The selected candidate will be enrolled as a PhD student at the University of Basel.

If you are interested, please submit your CV, a publication list (if applicable), a brief motivational statement explaining your qualifications and research interests, and one or two letters of recommendation. Please send your application by email to:

- Dr Paul Hired, [paul.hired@unibas.ch](mailto:paul.hired@unibas.ch)

For further information, please contact

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