

Call for applications

PhD student position (m/f/d)

“Characterization and Optimization of a 2.45 GHz ECR Ion Source for Proton Therapy”

DREEBIT GmbH was founded in 2006 as a spin-off enterprise from Technische Universität Dresden. From the beginning, ion sources were key products of the company. We are the global market leader in manufacturing Electron Beam Ion Traps and Sources (EBIT/ EBIS). Now a growing demand on the proton therapy market is driving us to improve our technology in the field of compact Electron Cyclotron Resonance Ion Sources (ECRIS). Therefore, DREEBIT’s Ion Beam Technology group of highly-motivated PhD and master’s degree physicists and engineers is looking for young academics to join and enrich our team.

Your tasks

- Investigation on plasma parameters, i.e. density and temperature of electrons, ions and neutral particles, to gain insight into plasma processes taking place within an ECRIS
- Improvement of the ECRIS performance by adjusting the plasma parameters to create best possible conditions for proton production, raising the standard for ECR ion sources in medical particle therapy

Methods

- Ion extraction and mass spectrometry (bending magnet/ Wien filter)
- Emission spectroscopy accompanied by collisional radiative model calculations
- Langmuir probe measurements

Interesting effects considering the ECRIS performance have been observed phenomenologically and now need to be investigated in detail. A large fraction of the necessary equipment is available and ready for use at our in-house laboratories, first measurements can start immediately. Collaborations with **Advanced Oncotherapy (AVO)**, a leading manufacturer of proton therapy systems, and the **AG Experimentelle Plasmaphysik at Universität Augsburg** guarantee direct connections to industry as well as profound scientific background and support.

Who are we looking for?

- You finished a master’s degree (or equivalent) in physics with excellent grades?
- During your studies and thesis work you have gained first experience in conducting scientific measurements and data analysis, ideally in the field of plasma physics/ diagnostics?
- High voltage and ultra high vacuum facilities have been a part of your previous work environment?
- You have basic programming skills to write codes for data analysis and/ or measurement automatization purposes?
- You can present your work (posters, papers, talks) fluently in English?
- You are willing to travel to our collaboration partners in Augsburg and Garching, Germany, in Geneva, Switzerland, or Daresbury, Great Britain, for a part of your studies and measurements?

... Then don’t hesitate to apply! We are looking forward to working with you!

Dr. Alexandra Philipp

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