



Karlsruhe Institute of Technology

Karlsruhe Institute of Technology
Personalservice (PSE)

Kaiserstraße 12
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Postdoc (m/f/d)

Accelerator magnets for high intensity beams in storage rings: Modelling and benchmarking experiments

Job description:

The Laboratory for Applications of Synchrotron Radiation (LAS) is located at Campus South of KIT and closely connected to the Institute for Beam Physics and Technology (IBPT) located at Campus North of KIT, which is operating the research accelerator KARA and building up the linear research accelerator FLUTE. The LAS is collaborating with the Institute for the Theory of Magnetic Fields (TEMF), TU Darmstadt, and CERN within the framework of BMBF-funded research project 'R&D for Highest Intensities in Circular Accelerators'.

In this context we offer a Postdoc position dedicated to developing models and according benchmarking experiments for (a) the magnetic and beam-optical properties of accelerator magnets for high-intensity beams and (b) the damage mechanisms in superconducting accelerator magnets upon the impact of high-energy beam losses. This project will be carried out in close collaboration with TEMF and CERN.

We envision the following concrete tasks:

- fully characterize the magnetic field of FLUTE and KARA magnets and model particle transport through these magnets using software tools developed by TEMF
- verify the beam transport simulations by experiments at FLUTE and KARA
- develop experimental strategies and diagnostics for quench and damage analysis for superconducting magnets irradiated by a high-intensity/energy proton beam
- design and build test coils and magnets, set up an experimental environment and perform experiments at CERN's irradiation facility HiRadMat
- develop models for damage mechanisms and thresholds as part of the overall machine protection model of LHC

Qualification:

You should have a PhD in physics, have fun in developing and testing new, unusual concepts, be willing to push first ideas forward via numerical simulations to experiments, and have experience in one or more of the following fields: accelerator physics, superconductor technology, accelerator magnet design, beam dynamics simulation.

We offer:

We offer an attractive and modern workplace with access to excellent facilities of KIT, diverse and responsible tasks, a wide scope of advanced training options, supplementary pension with the VBL (Pension Authority for Employees in the Public Service Sector), flexible working time models, a job ticket (BW) allowance, and a cafeteria/canteen.

Salary:	The remuneration occurs on the basis of the wage agreement of the civil service in TV-L, E13, provided that personal preconditions are given
Institute:	Laboratory for Applications of Synchrotron Radiation (LAS)
Contract duration:	limited to three years
Starting date:	as soon as possible
Application up to:	14.04.2019
Contact person in line-management:	For more information please contact Dr. Axel Bernhard, E-Mail: axel.bernhard@kit.edu .
Application:	<p>Please send the full application with a motivation letter, curriculum vitae, copies of academic degrees and transcripts of records as a single PDF file to Dr. Axel Bernhard, E-mail: axel.bernhard@kit.edu</p> <p>We prefer to balance the number of employees (m/f/d). Therefore we kindly ask female applicants to apply for this job.</p> <p>If qualified, severely disabled persons will be preferred.</p>
Karlsruhe Institute of Technology Personalservice	KIT is certified as a family-friendly university (familienfreundliche Hochschule) and offers part-time employment, leaves for family-related reasons, dual career options, and individual coaching for family-work balance.