

Helmholtz Call for Chinese Applicants Interested in Running for CSC 2021 Fellowship

- Helmholtz Centre:** Forschungszentrum Jülich GmbH – www.fz-juelich.de
- Department/Institute:** Institute of Energy and Climate Research, Plasmaphysics (IEK-4)
https://www.fz-juelich.de/iek/iek-4/EN/Home/home_node.html
- Supervising scientist:** Prof. Dr. Yunfeng Liang
- University for registration or for a future degree:** HHU Düsseldorf
- Research Field:** Energy; Plasma physics
- Position open for:** PhD Student or Sandwich PhD Student
- Title of the research:** Edge transport and stability in high beta plasmas with an island divertor on W7-X

More description of research topic:

The stellarator is one major type of magnetic confinement fusion device. In contrast to tokamaks, no plasma current is needed to create the poloidal field, and the magnetic field lines are naturally twisted along the toroidal and poloidal directions in stellarators. Since no current needs to be induced, steady-state operation is possible. Wendelstein 7-X, the world largest stellarator for the next few decades, started operations in Nov. 2015, and under preparation of OP2 with an island divertor configuration. A detailed study of the 3D island divertor physics is important, and requires knowledge of the processes in the plasma edge and scrape-off layer.

The Institute of Energy and Climate Research (IEK-4) is one of the leading institutes in plasma edge diagnostics and physics of 3D edge physics. Its major contributions on W7-X are a multi-purpose probe system with probe heads to measure plasma parameters in the edge region, an endoscope system enabling a tomographic reconstruction of impurity radiation in the divertor region as well as divertor power load measurements and active gas injection diagnostics allowing for helium transport studies

We are seeking one or two sandwich / PhD student researchers. He/She will work on the edge modelling and diagnostics for a study of "Edge transport and stability in high beta plasmas with an island divertor on W7-X".

Specific requirements:

A very good knowledge of mathematical and modelling skills, and good experiences of plasma transport physics on tokamak or stellarator are a prerequisite, as well as a very good level in spoken and written English.

Working Place: Forschungszentrum Jülich, Germany (near Cologne)

Earliest Start: September 2021

Language Requirement: Very good knowledge of English language, written and spoken. German language courses are organised in the context of our in-house training program and are free of charge.

Name and Address of the Supervisor: Prof. Dr. Yunfeng Liang, Forschungszentrum Jülich, Institute of Energy and Climate Research (IEK-4), 52425 Jülich, Germany
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