

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

**Helmholtz Centre:** Forschungszentrum Jülich GmbH – [www.fz-juelich.de](http://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](https://www.fz-juelich.de/iek/iek-4/EN/Home/home_node.html)  
**Supervising scientist:** Dr. Olaf Neubauer  
**University for registration or for a future degree:** -  
**Research Field:** Energy; Plasma physics  
**Position open for:** **PhD Student**  **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:

How to control the heat and particle fluxes to the tolerable level of the plasma-facing components while maintaining a good confinement of burning plasma is a great challenge for fusion energy research. Previous experimental and theoretical results from both tokamak and stellarator indicate that the magnetic topology plays a key role on the edge plasma transport and plasma-wall interactions.

In stellarator, the island divertor configuration has intrinsic 3D field properties, and it is beneficial to increase the equivalent radial transport resulting in reduction of the peak heat load on the divertor target. A group of edge diagnostics and modelling has been developed by IEK-4 to investigate characteristics of 3D edge transport in high-beta operation on Wendelstein 7-X (W7-X).

A multi-purpose probe system with probe heads has been installed to measure plasma edge profiles on W7-X since beginning of the W7-X operation. We are seeking a sandwich PhD student researchers. He/She will work on the research topic of "Measurement of edge plasma current profiles using the electron directional probe 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:** Dr. Olaf Neubauer, Forschungszentrum Jülich, Institute of Energy and Climate Research (IEK-4), 52425 Jülich, Germany; Email: [o.neubauer@fz-juelich.de](mailto:o.neubauer@fz-juelich.de)