

# ACCELERATOR SEMINAR

**Holger Podlech**

(Goethe University - IAP)

**Thursday, June 13<sup>th</sup>, 2024 at 4:00 p.m.**

**Seminar room theory**

(SB3 3.170a)

**The seminar takes place exclusively in presence**

## **Accelerator Based Neutron Sources**

### Description

Neutrons are an essential tool in science and research for probing the structure and dynamics of matter from the mesoscale to the picoscale and from seconds to femtoseconds. To release neutrons for research, the commonly used methods are fission in nuclear reactors, spallation using high-energy proton accelerators, and nuclear reactions with low-energy proton accelerators.

Due to the decommissioning of several reactors, only about half of the neutrons will be available for research in Europe in the next decade despite the commissioning of the ESS. There is an urgent need for developing a new class of efficient compact High Current Accelerator based Neutron Sources (HiCANS) to offer competitive capabilities for many research areas.

The presentation emphasis on the development of the High Brilliance Neutron Source (HBS) at the research center Jülich as a flagship project in the class of HiCANS. It is based on a pulsed 100 mA, 70 MeV proton Linac with a high beam duty factor of up to 20%, resulting in a maximum average beam power of 1.4 MW.

In addition, projects in which Goethe University is significantly involved or in charge will be discussed (FRANZ, MYRRHA).



Coordinator: Claude Krantz, Janet Schmidt  
Secretary: Paola Lindenberg



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