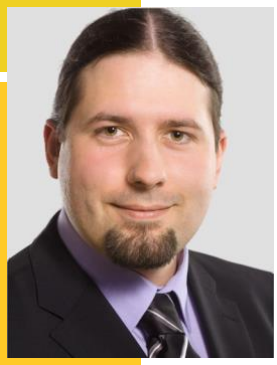
# PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik
der Johann Wolfgang Goethe-Universität Frankfurt

**Mittwoch, den 06.07.2022, 16 Uhr c.t.**
**Großer Hörsaal, Raum _0.111,**
**Max-von-Laue-Str. 1**



## Dr. Hendrik Hähnel

*Institut für Angewandte Physik – Goethe Universität*

## *" Status and Perspectives of the FRANZ Accelerator"*

The Frankfurt Neutron Source (FRANZ) is a compact accelerator driven facility originally initiated in the early 2000s. It is designed to provide a 2 MeV proton beam for neutron production via the 7Li(p, n)7Be reaction. The produced neutrons with a thermal spectrum around 30 keV can be used for a number of experiments in the fields of applied physics and experimental astrophysics.

Significant progress on the driver linac was made recently. The commissioning of the new CHORDIS ion source in late 2020 was a first milestone. Since the CHORDIS ion source only provides a 35 keV proton beam, an electrostatic post-accelerator was developed and commissioned at IAP to reach the desired beam energy of 60 keV. After stable operation was confirmed, the Low Energy Beam Line (LEBT) was commissioned and the beam was transported up to the point of Injection into the RFQ-Accelerator. This presents an important milestone for the initial beam commissioning of the FRANZ facility. The 2 MeV RF linac is presently being modified in one component to match the achieved beam conditions at injection. Meanwhile, emittance measurements to further improve an efficient injection into the RFQ are well under way.

I will present the recent progress since ca. 2019 and show a path to operation for first experiments with neutrons within the next two years. A new compressor concept for the production of short brilliant neutron bunches in the future will be shown as well.

Die Dozenten der Physik

local host: Prof. Dr. Ulrich Ratzinger | u.ratzinger@iap.uni-frankfurt.de