

Internship at IHM



Development of a Frequency Measurement Setup up to 260 GHz for MW-Class Gyrotrons for Fusion Applications

Gyrotrons are high-performance vacuum tubes that currently provide up to 2 MW of RF output power at frequencies up to 170 GHz, which are required for electron cyclotron resonance heating and current drive (ECRH&CD) for fusion machines. In the future, the operation of gyrotrons above 200 GHz will be mandatory. The first KIT pre-prototype of a gyrotron operating at 204 GHz will be verified in early 2021. However, the existing equipment is limited to 170 GHz. For this reason, the IHM needs a new frequency measurement setup based on the existing setup which is capable up to 260 GHz.

In this work the student learns to design a frequency measurement setup and verifies the constructed setup metrologically.



Contact

M. Sc. Tobias Ruess Bau 421 CN (IHM), Zimmer 307A E-Mail: <u>tobias.ruess@kit.edu</u> Telefon: 0721-608 22651