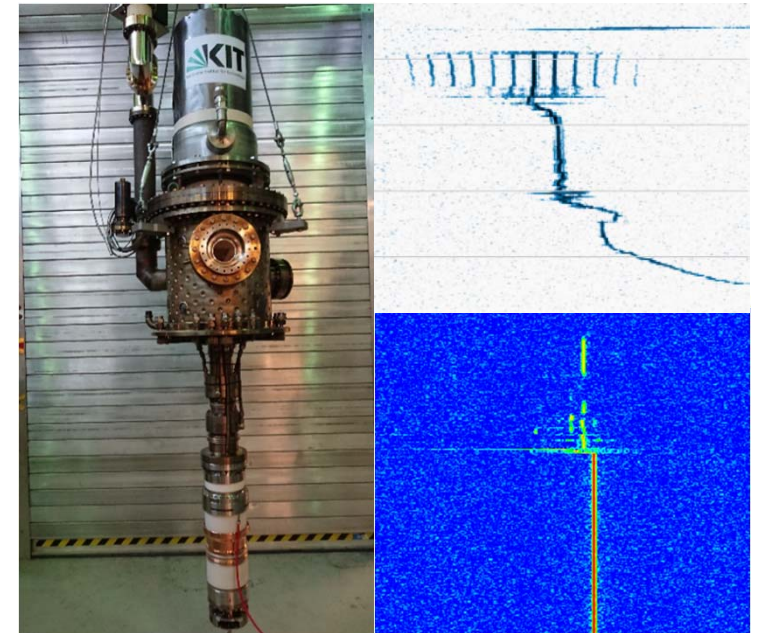


# Development of a Frequency Measurement Setup up to 260 GHz for MW-Class Gyrotrons for Fusion Applications

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

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