

## Ferdinand-Braun-Institut gGmbH



Das Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) ist eine anwendungsorientierte Forschungseinrichtung auf den Gebieten der Hochfrequenzelektronik, Photonik und Quantenphysik. Das FBH erforscht elektronische und optische Komponenten, Module und Systeme auf der Basis von Verbindungshalbleitern. Diese sind Schlüsselbausteine für Innovationen in den gesellschaftlichen Bedarfsfeldern Kommunikation, Energie, Gesundheit und Mobilität. Es verfügt über die gesamte Wertschöpfungskette vom Design bis zu lieferfertigen Systemen.

### Master thesis: Advanced Linear GaN Front-End for Radar - 05/26

The Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH) is an application-oriented research institute in the fields of high-frequency electronics, photonics and quantum physics. It researches and realizes electronic and optical components, modules and systems based on compound semiconductors. These devices are key enablers that address the needs of today's society in fields like communication, energy, health, and mobility. The focus in the RF Power Lab is on applications with output powers in the range of 5...200 W in the microwave range up to 40 GHz. We work on novel concepts to increase efficiency in broadband modulated power amplifier systems for modern telecommunication and signals with high peak-to-average power ratios. In particular, we investigate dual-input amplifier systems based on load & supply-voltage modulation and how to use them in AI-controlled intelligent self-tunable systems. Integrated reconfigurable components and circuits are also in focus and more advanced integrated transceivers for radar and telecom. In addition, we develop novel autonomous RF measurement systems for improved RF power transistor characterization and the optimization of such devices based on machine learning.

City: Berlin; Starting date (earliest): At the earliest possible; Remuneration: 14,84 €/ h;  
Reference number: 05/26; Closing date: 15/09/26

### Tasks

- Assessment of GaN technology in possible novel integrated GaN RF front-end configurations
  - Full duplex in-band transceivers
  - Integrated down-conversion
  - Quasi circulator-based systems
- System simulations to quantify the expected technical performance with regards to e.g.
  - Spurious free dynamic range (SFDR)
  - Selectivity
- Evaluation and verification of required sub-system component models to use in the system simulations
  - High power PA
  - Low noise amplifier (LNA)

- Mixer (various implementations)
- Isolation / switching function
- Characterization of sub-system component models

## Requirements

- On-going master studies in Electrical Engineering, Communications and Signal Processing, or Physics with Applied Mathematics
- Knowledge of signal processing, microwave engineering, radar and communication systems, nonlinear and behavioral modeling, RF measurement technology
- Interest in applied mathematics, RF electronics and applied engineering
- Experience in Matlab and/or Python, and Keysight ADS (preferably)
- Starting date: a.s.a.p.

## What we offer

- An open and appreciative international team, always available with help and advice
- A modern workplace in Berlin Adlershof with good public transport connections
- Exciting insights into practical applications and the opportunity to gain valuable experience

## Application

Does it sound interesting? Then we look forward to receiving your online application. To apply, please submit your complete application documents by September 15, 2026.

If you have questions, please contact Dr. Olof Bengtsson, Tel.: 030 6392-2643, E-Mail: [olof.bengtsson@fbh-berlin.de](mailto:olof.bengtsson@fbh-berlin.de).

More information at <https://stellenticket.de/206268/BEUTH/>  
Offer visible until 30/08/26

