

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 Bedarfsefeldern Kommunikation, Energie, Gesundheit und Mobilität. Es verfügt über die gesamte Wertschöpfungskette vom Design bis zu lieferfertigen Systemen.

Master thesis: Modeling and Intelligent Control of a Dual-Input RF Power Amplifier System - 07/26

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: tbd;
Reference number: 07/26; Closing date: 15/09/26

Tasks

1. Evaluation of a novel behavioral model for a supply voltage modulated dual input dual output (DIDO) system over large temperature variation
 - Acquiring experimental data for the ET PA at different temperatures T1, T2, ...
 - Identify model parameter for a recently developed DIDO model for each temperature
 - Use machine learning (ML) to create a model for the parameter dependence
 - Verify the model for experimental data
2. Control and optimization of PA performance for temperature variations
 - Develop a ML model for control of the DIDO
 - Train the ML model based on the behavioral model in task 1
 - Verify the ML model based on experimental data

Requirements

- On-going master studies in Computer Science. Electrical Engineering, Communications and Signal Processing, or Physics with Applied Mathematics
- Knowledge of machine learning, signal processing, microwave engineering, nonlinear and behavioral modeling, AI-based modeling
- Interest in applied mathematics, signal processing
- Experience in Matlab and Python (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 by September 15, 2026.

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

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Offer visible until 02/09/26

