

# PhD POSITION

## in Power Electronics and GaN Device Characterization (40h)



INSTITUTE FOR  
MICROELECTRONICS

### RESEARCH TOPIC:

Development of High-Voltage Characterization Tools for GaN Power Devices

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**ABOUT US:** The **Institute for Microelectronics at TU Wien** is a globally recognized research institute in micro- and nanoelectronics. We combine experimental characterization, circuit-level understanding, and physics-based modeling to study advanced semiconductor devices, with a strong focus on reliability and power applications.

**DESCRIPTION:** Wide-bandgap semiconductors such as GaN are key enablers for next-generation power electronics, offering superior efficiency and switching performance. However, their full potential remains limited by dynamic effects, such as charge trapping, which strongly affect device behavior under realistic operating conditions.

This PhD project focuses on **developing an advanced high-voltage CV characterization platform**. A central goal is to establish a **measurement and circuit environment capable of investigating GaN devices under realistic switching conditions up to 1 kV**, bridging the gap between device-level physics and application-relevant operation.

The project combines:

- Design and realization of **high-voltage test circuits (e.g., half bridge setups)**
- Development of **custom measurement hardware and synchronization schemes**
- Execution of **advanced I-V and C-V measurements under dynamic stress conditions**
- Close interaction with **TCAD modeling and industrial device development**

A strong focus is placed on **hands-on hardware development**, including building, testing, and improving measurement setups for fast switching transients and high-voltage operation.

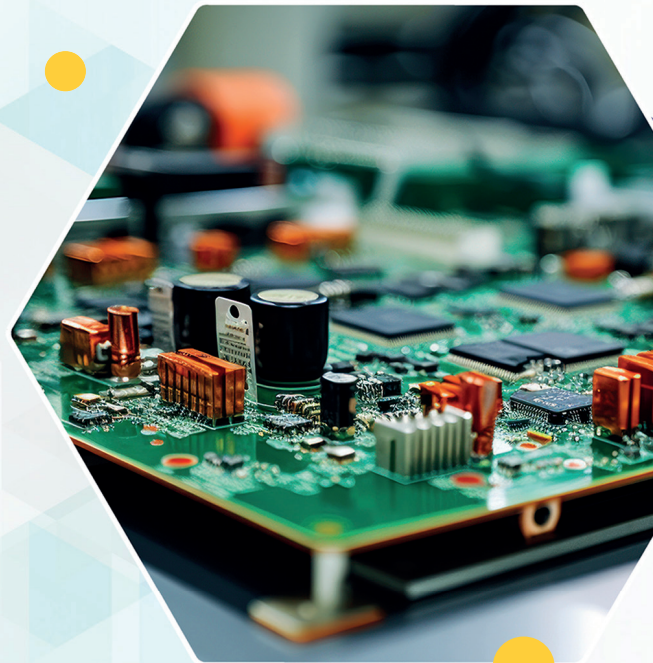
**YOUR PROFILE:** For this PhD position, we are specifically looking for candidates with a **strong background in power electronics and circuit design**, including hands-on experience.

Required qualifications:

- Master's degree in Electrical Engineering, Electronics, or a related field
- **Strong experience in power electronics and circuit design (essential)**
- **Hands-on experience with hardware development and laboratory work**
- Experience with **high-voltage systems or fast-switching circuits**
- Experience with measurement equipment (oscilloscopes, SMUs, LCR meters)
- Ability to design, build, and debug experimental setups independently
- Programming skills (e.g., Python, C/C++)
- Team-oriented, proactive, and reliable
- Very good written and spoken English

**STARTING DATE:** As soon as possible

**SALARY:** The position is subject to the collective agreement of TU Wien for scientific staff (employment group B1). The annual gross salary is approximately **52,865 EUR** (paid 14 times per year) and includes public health care.



**APPLY NOW!**

Additional qualifications (beneficial but not required):

- Basic understanding of **GaN devices or wide-bandgap semiconductors**
- Familiarity with PCB design and layout for high-voltage circuits
- Exposure to TCAD or device simulation

**WHAT WE OFFER:**

- A highly practical PhD project with a strong emphasis on hardware and circuit design
- Opportunity to develop and operate state-of-the-art high-voltage measurement systems
- Close collaboration with leading industry partner Infineon Technologies
- Access to advanced laboratory infrastructure at TU Wien
- Integration into a strong research environment combining experiment and simulation
- Excellent career opportunities in both industry (power electronics, semiconductors) and academia after graduation

**APPLICATION:**

Please submit:

- Detailed CV
- Academic transcripts
- Master's thesis (PDF or link)
- One-page motivation letter  
(highlighting **hands-on experience in circuit design and hardware development**)

to [jobs@iue.tuwien.ac.at](mailto:jobs@iue.tuwien.ac.at).



**APPLICATION DEADLINE:** Open until filled.

**SUPERVISOR:** Univ.Prof. Dr. Michael Waltl

