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CALLING ALL EXPERTS IN POWER ELECTRONICS AND DEVICE PHYSICS!
AT FRAUNHOFER MAKE THE MOST OF YOUR TALENTS BY JOINING OUR
ADVANCED DEVICES TEAM. POSTS ARE IMMEDIATELY AVAILABLE FOR:

PhD position - development of ferroelectric field effect transistors on the basis of AlScN

The Fraunhofer Society operates 76 institutes and research facilities in Germany and is the world's leading organization for application-oriented research. Around 30,000 employees work on an annual research volume of 2.9 billion euros.

The Fraunhofer Institute for Silicon Technology ISIT is part of the Fraunhofer Society and works with approximately 170 employees at the locations Itzehoe and Kiel in a leading position with industry and research on a national and international level.

Its scientists develop power electronic components and silicon-based microsystems. The Power Electronics business unit focuses on the development of advanced active and passive power semiconductor components based on silicon and gallium nitride. We also integrate them into power electronic systems and develop battery storage and high-performance storage systems.

Recently, scientists at ISIT discovered the ferroelectric properties of AlScN, a unique nitride-based ferroelectric that shows great potential for improving memories and power electronic devices. To accelerate our activities, we are looking for a Ph.D. student to continue the development of ferroelectric AlScN thin films and their integration in Si-/GaN-based devices and integrated circuits. The position is available immediately.

What you will do

- Conceptualization and simulation of the processing steps and device properties through TCAD and compact models
- Evaluation and adaptation of semiconductor processes to reduce leakage currents and increase the reliability of AlScN thin films
- Accompanying of wafers during production in our clean rooms
- Communication of results internally and externally to customers
- Collaboration in national and international project teams
- Scientific profiling through academic publications along with support in the acquisition of research projects and industrial projects

What you bring to the table

- A university degree (Master / Diploma) in physics, electrical engineering, or related disciplines with excellent academic performance
- Expertise in semiconductor manufacturing technologies and processes
- Experience in the characterization of semiconductor processes and devices, additional experience in device design and process/device simulation (TCAD) is advantageous
- Professional English and German communication and writing skills
- You are highly independent, show great initiative and commitment, and have no trouble quickly familiarizing yourself with new tasks and taking on responsibility as part of a team.

What you can expect

- We offer you an innovative working environment with versatile activities in the field of publicly funded and industry-related research and development.
- A varied range of topics with close contacts to industry and public clients awaits you.
- You have the space to work independently and with your own ideas, and you can actively help to shape the future.
- We offer flexible working hours and support the balance between private and professional life.

The position is limited to 3 years. We value and promote the diversity of our employees' skills and therefore welcome all applications – regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation, and identity. Severely disabled persons are given preference in the event of equal suitability. Appointment, remuneration, and social security benefits based on the public-sector collective wage agreement (TVöD).

With its focus on developing key technologies vital for the future and enabling the commercial utilization of this work by business and industry, Fraunhofer plays a central role in the innovation process. As a pioneer and catalyst for groundbreaking developments and scientific excellence, Fraunhofer helps shape society now and in the future.

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