



## Doctoral Thesis: SiC Quantum Sensor Development for a highly sensitive Health Sensor (f/m/div)

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We are offering a doctoral thesis in the field of SiC Quantum Sensor Development for a highly sensitive Health Sensor. This PhD thesis will immerse you in the comprehensive development of advanced quantum sensor technology. You will have the opportunity to explore various advanced topics. Firstly, you will understand how quantum systems can achieve unprecedented sensor performance through the principles of quantum sensing. Additionally, you will investigate the benefits of Silicon Carbide (SiC) technology, highlighting its mature fabrication techniques and its capability to operate at room temperature. Moreover, there will be a focus on SiC color-center-defect based quantum sensors and their optimization. This journey will encompass a comprehensive approach, involving a full spectrum of tasks such as quantum modeling, simulation, device implementation, characterization, system architecture, and fabrication.

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**Location:** Villach

**Job ID:** HRC1170437

**Start date:** 01.04.2025

**Type of employment:** Full time

**Length of contract:** Temporary

## **Job description**

The tasks within the thesis will consist of:

- **Conduction of literature reviews** on quantum sensing and SiC color-center-defect technologies
- **Development and implementation of simulation models** to predict sensor performance
- **Investigation of novel quantum centers** for quantum sensing, device simulation, implementation, characterization, system architecture, and fabrication
- **Analysis of data to identify key parameters** influencing sensor performance.
- **Collaboration with researchers and engineers** to refine sensor designs
- **Documentation and presentation of findings** to both technical and non-technical audiences

Start: 01.04.2025 (or later)

Full-time employment: 38.5 hrs/week

Duration: 3 years

## **Your profile**

A doctoral student is a research enthusiast,

› ...whose interests are scientific research combined with the passion for Infineon's innovative products and applications

› ...who enjoys working in an industrial environment in combination with an Infineon partner university

› ...who appreciates open communication and the contribution of an international environment

› ...and is thus an excellent candidate for a further academic or industrial career after completion of their thesis

As the ideal candidate you have:

- **A master's degree in Physics** or comparable
- **Passion about cutting-edge technology** and innovative research
- **A strong background in quantum mechanics** and solid-state physics
- **Experience with simulation tools and programming languages** such as Python, MATLAB, or similar
- **Excellent analytical and problem-solving skills**
- **The ability to work independently** and as part of a team
- **Strong communication skills in English**; German is an advantage

Please attach the following documents to your application:

- Your CV
- Motivation letter
- Copy of your master degree certificate if already available
- Otherwise: copy of your latest study transcript

This position is subject to the collective agreement for workers and employees in the electrical and electronics industry. The salary for this position is EUR 3.525,00 gross p.m. (full-time basis).

## **#WeAreIn for driving decarbonization and digitalization.**

As a global leader in semiconductor solutions in power systems and IoT, Infineon enables game-changing solutions for green and efficient energy, clean and safe mobility, as well as smart and secure IoT. Together, we drive innovation and customer success, while caring for our people and empowering them to reach ambitious goals. Be a part of making life easier, safer and greener.

**Are you in?**

### **–Power & Sensor Systems (PSS) drives leading-edge power management, sensing, and data transfer capabilities –**

The **PSS** division powers decarbonization and digitalization with a wide range of energy-efficient and digital solutions. PSS semiconductors help avoid carbon emissions, use resources sustainably, manage power effectively and intelligently, give ‘things’ smart senses, and process data quickly and reliably. The portfolio includes power, connectivity, RF, and sensor system technologies to develop smaller, lighter, smarter, and more efficient solutions for consumer devices, smart home/building applications, robotics, computing and data centers, charging devices, power tools, and much more.

The next generation of silicon and wide-bandgap (SiC and GaN) solutions provides unparalleled performance and reliability for 5G, big data, and renewable energy applications. These materials are paving the way for further energy and carbon savings. Highly precise XENSIV™ sensor solutions are enabling IoT devices to react intuitively to their surroundings for seamless user interactions while audio amplifiers bring exceptional sound experiences to smart speakers and other audio use cases.

[Click here](#) for more information about working at PSS with interesting employee and management insights and an overview with more #PSSDreamJobs.

At **Infineon in Villach** you shape the technologies of tomorrow and work in an international environment with more than 4.700 colleagues from over 70 nations. Your personal contribution will be valued and appreciated as the cornerstones of our success. And all that in beautiful surroundings which guarantee a high quality of life.

The **City of Villach** is located in the center of Carinthia, Austria’s southernmost province, in close proximity to the Italian and Slovenian border. Due to its particular geographic location and the outstanding natural beauty of the region, Villach and the whole province of Carinthia have for generations been popular holiday destinations for people from all over the world. Living in Austria also has many social, health-care-related and economic perks. The country’s social and health care system is among the best in the world and for decades numerous international surveys have singled out Austria as a particularly safe and wealthy country with a high quality of life. Villach benefits from its status as a “small town”, offering everyday living at affordable prices in an outstanding setting.

**Find out what you like most about Villach and join us:**

<https://www.welcome2villach.at/>

**We are on a journey to create the best Infineon for everyone.**

This means we embrace diversity and inclusion and welcome everyone for who they are. At Infineon, we offer a working environment characterized by trust, openness, respect and tolerance

and are committed to give all applicants and employees equal opportunities. We base our recruiting decisions on the applicant's experience and skills.

We look forward to receiving your resume, even if you do not entirely meet all the requirements of the job posting.

Please let your recruiter know if they need to pay special attention to something in order to enable your participation in the interview process.

[Click here](#) for more information about Diversity & Inclusion at Infineon.

Does this sound like just the right challenge for you? If so, we look forward to getting to know you!

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(It only takes 90 seconds)



## Contact

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[LinkedIn Recruiter Profile](#)