

PhD Position (CIFRE) — Development and Optimization of Innovative Soldering Processes in Power Microelectronics (M/F)

Location: Tours, France

Reference: ID 8728

Contract: 3-year CIFRE doctoral contract (full-time employment at STMicroelectronics)

Gross salary: approximately €2,300 gross per month

Start date: to be agreed

Open to: candidates from all European countries

About STMicroelectronics

At STMicroelectronics, we believe that technology drives innovation and has a positive impact on businesses, people, and society. As a global semiconductor player, our cutting-edge technologies and electronic components are invisible, yet at the heart of today's world.

Joining ST means becoming part of an international company with more than 115 nationalities, present in 40 countries, and bringing together over 50,000 passionate and committed talents — all united by the desire to create and invent tomorrow's technology. Innovation requires much more than technical skills: it requires inspiring people who collaborate with respect and enthusiasm, challenge the status quo, and reveal their full potential.

Come and experience this adventure with us, and help build a smarter and more sustainable future by combining responsibility and innovation.

Our technology starts with you.

The PhD Project

Hosted within the **Packaging & Assembly Technology R&D department** at the STMicroelectronics site in Tours, this CIFRE thesis aims to **develop and optimize innovative soldering processes** based on advanced techniques such as:

- low-temperature soldering,
- lead-free soldering,
- controlled reflow soldering.

The objective is to improve the **mechanical robustness, thermal and electrical conductivity**, and **long-term reliability** of power microelectronic assemblies.

The thesis is carried out in close partnership with an academic laboratory of the Université de Tours, combining industrial R&D resources with academic expertise in materials science, metallurgy, and reliability of assemblies.

Your Responsibilities

- Design and carry out experimental plans to optimize soldering parameters according to material and process constraints
 - Perform physical and microstructural characterization, as well as reliability analyses, of soldered assemblies
 - Implement numerical simulations (thermal, mechanical, diffusion) to complement and guide the experimental work
 - Provide in-depth technology watch to integrate the latest scientific and industrial advances
 - Collaborate with R&D, engineering, production, and quality teams for coordinated and efficient progress
 - Publish in peer-reviewed journals and present at international conferences
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Your Profile

- Master's degree (or equivalent, e.g. engineering degree) ideally specialized in **materials science, metallurgy, or process engineering**
 - Excellent analytical, synthesis, and complex problem-solving skills
 - Autonomy, scientific rigor, and ability to work in a multidisciplinary team
 - Good level of **English**, both spoken and written, for article writing and international communication (knowledge of French is a plus but not required)
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What We Offer

- A 3-year full-time employment contract under the French **CIFRE** scheme, leading to a PhD degree from the Université de Tours with Greman Laboratory labelled CNRS
 - **Gross salary of approximately €2,300 gross per month**
 - Access to state-of-the-art industrial cleanroom, characterization, and reliability facilities, CERTEM platform
 - Joint industrial–academic supervision and a structured doctoral training program
 - An international, multidisciplinary R&D environment
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Why Join ST?

ST is proud to be certified among the 17 **Global Top Employers 2025**, and to be the first and only semiconductor company to receive this distinction — recognized for its continuous improvement approach, commitment to ethics and integrity, purpose and values, organization and change management, and business strategy and performance. In France, ST also received the **Happy Trainee 2025** label.

We cultivate an inclusive and diverse work environment where discrimination has no place. Our ambition is to recruit and retain talent that reflects the richness of the societies in which we operate, and we are committed to equity in career development, professional opportunities, and compensation.

At ST, we encourage candidates who do not necessarily meet all the criteria to apply, because we believe in the richness of diverse backgrounds and offer real opportunities for learning and growth. Diversity, equity, and inclusion are fundamental values that shape our company culture.

To discover all our opportunities, visit st.com/careers.

Recommended video : <https://www.youtube.com/watch?v=IPmxCpM8Edg>