SINGULUS

SINGULUS TECHNOLOGIES develops and assembles innovative machines and systems for efficient thin-film coating and surface treatment processes, which are used worldwide in the Photovoltaics, Semiconductor, Medical Technology, Packaging, Glass & Automotive as well as Battery & Hydrogen markets.

PhD Position in Green IT:
Skyrmionics- low-power and neuromorphic computing and sensing (m/f/d)

Our offer:
SINGULUS offers the opportunity for a passionate doctoral candidate (DC) to be part in the developing of the next generation of magnetic thin film devices enabling *Artificial Intelligence* (AI). We are studying the use of skyrmions, magnetic whirls with enhanced stability and dynamics. The work is embedded in the Doctoral Network (DN) TOPOCOM (Topological solitons in ferroics for unconventional computing). This exciting program offers 11 doctoral candidates the chance to profit from a close cooperation with leading European academic and major industrial partners (Infineon, IBM) to carry out cutting edge research in this field. Integral part of the program is an intensive continuous training not only in sciences but also in developing and sharpen soft skill with professional trainers to pave your further carrier in science. More details about the network are available at: www.topocom.eu

It is a full-time position with a temporary contract for 36 months. The payment is according to EU MSCA program taking in account your marital status. You will benefit from all German social security measures including health insurance and a pension plan. The offer is open until Dec 1st, 2023. Starting of contract will be March 1st, 2024 or earlier.

Your task:
Your task will be to develop and optimize thin-film multilayer stacks, which will be the basis of different novel magnetic non-conventional computing devices based on topological solitons. The goal is to integrate a hall sensor for direct read out of the skyrmions. In particular, we will explore the dynamics of synthetic antiferromagnetic skyrmions, which exhibit enhanced diffusive motion that lends itself to applications in token-based Brownian computing and reservoir computing.

For deposition you will learn to use SINGULUS latest generation of fully automatized production tools, for device fabrication and characterization you will use latest technology and professional support at the academic (University Mainz) and industrial (Infineon) partners. Our academic partner (UNIME) supports you with adequate theoretical background during prolonged secondments at the project partners.

For this program, an enrollment in a PhD school is mandatory. The Institute for Physics at the Johannes-Gutenberg-University Mainz (Condensed Matter Group, Prof. M. Kläui) will be the academical partner. The Physics Department has been consistently ranked as one of the leading physics departments in Germany. In the recent Shanghai and CHE ranking it was selected for the excellence group in Europe; in 2018 and 2021 Mainz was ranked #1 in Germany by the German Research Foundation.

Specific requirements/skills:

- Master's in physics granted by an university or an equivalent institution of higher education that qualifies the candidate to embark on a doctoral degree
- Excellent communication and teamworking skills
- Eligible candidates may not have resided or carried out main activity (work, studies, etc.) in Germany for more than 12 months in the 3 years immediately prior to the recruitment under the project. Compulsory national service and/or short stays such as holidays are not taken into account

Applications from women and other typically underrepresented groups are particularly welcome.

Good reasons to choose us

- Realize your potential in an international, technically innovative and exciting environment
- 30 days annual vacation, flexible working hours and temporary mobile work
- Professional on-the-job training and continuous support in your professional development
- Flat hierarchies and direct communication in our team offices
- Corporate benefits program
- Accident insurance (business and private)
- Good public transport connections and city proximity to Aschaffenburg, Hanau, Frankfurt am Main
- Our subsidized canteen with coffee bar and terrace invites you to network

Your contact person for all questions is Dr. Jürgen Langer, Juergen.Langer@Singulus.de

Please visit our career platform at www.singulus.de or apply directly using the following link

https://singulus.softgarden.io/job/35832685/PhD-Position-in-Green-IT-Skyrmionics-low-power-and-neuromorphic-computing-and-sensing-m-f-d-/?jobDbPVId=92711677&l=de

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