The “Nanotechnology Group” at the Institute for Micro- and Nanotechnology at the TECHNISCHE UNIVERSITÄT ILMENAU, Germany offers

1 Postdoctoral Research Position (PhD) (f/m/d)

on

“Fabrication Technologies to Enable the Realization of Stretchable Electronics, Metamorphic Electronics, and Epidermal Electronic Systems”

A successful candidate will be responsible for research in the emerging fields of metamorphic electronics, stretchable electronics, epidermal electronics, and conformal electronics. Different from conventional rigid electronics the electronic components will be embedded in thin stretchable elastomeric materials. The research will study advanced methods to mount microscopic instead of macroscopic electronic components out of silicon and III / V semiconductors on elastomeric substrates. The physical principle of positioning and electrical connection are based on novel surface tension-based self-assembly principles and transfer techniques. The project involves research in the field of integration of components on stretchable substrates.

The research includes:

- Planning, implementation and evaluation of experimental work
- The design and implementation of the necessary lithographic patterning processes to fabricate substrates and interconnects.
- The design and implementation of the necessary chip assembly processes to assemble the chips on the desired substrates.
- The evaluation of the mechanical deformability of various designs and the demonstration of novel applications and fabrication processes.
- Preparation of project proposals from the previously evaluated demonstrators.

Setting requirements are a scientific doctoral university degree (Dr. / PhD) in materials science, mechanical engineering, electrical engineering or comparable. Experience in the following areas is desirable: semiconductor processing technology, lithography, microsystems fabrication, advanced printed circuit boards, assembly of chips on various substrates, directed self-assembly, material transfer, and 3D modelling/simulation. The applicant is expected to exhibit a high degree of experimental skill, experience in design of prototypes and mechanical constructions. Applicants should point out those qualifications in the application.

Selection Process: As an applicant it is important that you show that you are qualified to work in this area and that you are truly interested and driven to advance the current knowledge in this field of research.

To do this your application letter needs to provide a brief description and answers to the following 4 questions:
1. What is the research about (look at the literature and keywords in the first paragraph)?
2. Are there others working on this internationally that you can find or know?
3. What technological approaches and methods are used?
4. Do you have any background or experience in these fields or why would you think you would be qualified to enter this research area and succeed and engaged in an independent doctoral thesis research?

If you have any questions, please contact Prof. Heiko O. Jacobs tel: +49 3677 69 3723

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