



YOU HAVE THE ABILITY TO QUICKLY ADAPT TO NEW WAYS OF LOOKING AT PROBLEMS?
YOU WANT TO USE YOUR HIGH POTENTIAL FOR INNOVATION TO IMPRESS US WITH YOUR
UNIQUE APPROACHES?

POSTS ARE IMMEDIATELY AVAILABLE FOR:

BACHELOR, MASTER OR DIPLOMA THESIS / STUDENT RESEARCH PROJECT: INVESTIGATION OF HIGH ELECTRIC FIELD DEGRADATION EFFECTS ON THE NANOSCOPIC ELECTROSTATIC DRIVE ACTUATORS (NED)

The electrostatically driven MEMS based NED-actuators are the patented new class of lateral electrostatic bending actuators, which have advantages compared with a classical electrostatic drives. Thanks to a small electrode gaps even moderate voltages create high homogeneous electric fields of MV/m range. Locally the electric fields due to geometry variation or processing tolerances are highly inhomogeneous and can reach values of tens to hundreds of MV/m. This could cause negative effects for the actuator, performing its degradation and reduce its lifetime. The aim of this work is to investigate and to evaluate the effect of high electric fields on narrow gap electrostatic systems with Si electrodes.

Your tasks:

- Acquaint oneself with the possibilities of Nano e-drive technology
- State of the Art regarding high field degradation mechanisms (cold Si-corrosion, ion migration, field emission, etc.) of silicon based MEMS
- Investigate the potential degradation mechanisms occurring on the NED-Actuators
- Characterization of test structures under high e-fields
- Analyze the e-field impact on the evolution of the degradation and comparison with state of the art

What you bring:

- Basic knowledge in the field of microsystems or material science would be an advantage
- knowledge in the fields of electrostatics, electrodynamics, plasma etc. are desirable
- knowledge of working in a laboratory and metrology techniques
- Independent, goal-oriented and structured way of working
- Enjoyment of working in an interdisciplinary team

What you can expect:

You will find a large network of experts working in an open and collegial environment within the excellent Fraunhofer research and development infrastructure.

We offer an exciting, up-to-date thesis position in which you can benefit from our experienced team. Our excellent industry-related research and development infrastructure provides you access to a large network of experts.

Work is planned to be carried out in our office in Cottbus. The thesis is awarded over a German partner university according to the higher education laws of the respective federal state. If you have any questions regarding this position, please do not hesitate to contact us:

If you have any questions regarding this position, please do not hesitate to contact us:

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