



BACHELOR/MASTER THESIS

»WEAR BEHAVIOUR OF POLYMERS UNDER FRETTING LOAD«

The Fraunhofer-Gesellschaft www.fraunhofer.de currently operates 76 institutes and research institutions throughout Germany and is the world's leading applied research organization. Around 30,000 employees work with an annual research budget of 2.9 billion euros.

With over 300 employees, the Fraunhofer Institute for Mechanics of Materials IWM has been for 50 years one of the leading institutes in Europe for predicting the behaviour of materials using simulations and scientific experiments.

Friction and wear are leading to increased energy demand and part failure. To save energy and resources, wear and friction losses need to be optimized. Therefore, we want to better understand frictional contacts. Within the scope of the thesis "Wear behaviour of polymers under fretting load", the behaviour of polymers in contact with steel under fretting conditions will be studied. Both the dissipated energy and the wear volume generated during the test are investigated. Fretting is a specific type of wear, which is characterised by particularly small displacement amplitudes at high frequencies. Fretting often occurs in automotive, aerospace, wind power and also medical applications. The thesis is part of an ongoing project at the MicroTribologie Centrum μ TC in which the wear behaviour of different metals is currently investigated.

What you will do

- you are using the existing fretting test rig to carry out tribological tests with polymers.
- you characterise the roughness and waviness of the samples prior to the test.
- you analyse the experimental data and determine the wear volume by using white light interferometry.

What you bring to the table

- you are studying Physics, Material Science, Mechanical Engineering, or a related discipline.
- you are interested in learning more about the wearing behaviour of materials.
- you are characterised by an independent way of working and critical thinking skills.

What you can expect

- You will work with an international motivated team on a challenging scientific research topic with a high practical relevance.
- You can take advantage of our wide-ranging opportunities for further development, both professionally and personally.
- Thanks to flexible working hours including mobile working and home-office days, you can easily combine family and career.
- Fitness and employee health programs are available.

We value and promote the diversity of our employees' skills and therefore welcome all applications - regardless of age, gender, nationality, ethnic and social origin, religion, ideology, disability, sexual orientation and identity. Severely disabled persons are given preference in the event of equal suitability.

With its focus on developing key technologies that are vital for the future and enabling the commercial utilization of this work by business and industry, Fraunhofer plays a central role in the innovation process. As a pioneer and catalyst for groundbreaking developments and scientific excellence, Fraunhofer helps shape society now and in the future.

Interested? Apply online now. We look forward to getting to know you!

Please apply online with your complete application documents (cover letter, CV, certificate of matriculation)



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

Marion Kugler
Tribocoating and -analytics
Tel. +49(0) 721 204327-64

Lea Hauserstein
Recruiting | Human Resources and Travel Management
Tel. +49(0) 761 5142-234