

## PhD position „Nanomechanical testing of cement lines in bone“

We are seeking a highly motivated PhD candidate to join the „Nanomechanics“ research group, led by Dr. Michael Wurmshuber and Prof. Mathias Göken at the Institute MSE I: General Materials Properties at FAU Erlangen-Nürnberg.

### Position Details

As a successful candidate, you will get the unique opportunity to perform micro- and nanomechanical testing on human bone within the Weave project “COHESION – Composition and mechanics of cement lines in cortical bone” in an exciting cooperation with TU Wien.

Your tasks will include:

- Nanoindentation testing of bone
- Preparation of nanomechanical test specimen (micropillars, microcantilevers, etc.) on bone cement lines using FIB
- Development of *in vitro* testing techniques of nanomechanical bone specimen using Nanoindentation
- Analysis of experimental data as a function of donor age, tissue age, composition, protein crosslinking and health
- Close cooperation with our research partners at TU Wien (responsible for investigating composition and structure of cement lines in bone)
- While the primary focus is on research, participation in institute activities and mentoring of students is encouraged

### Your profile and qualification

- Master's degree in Materials Science, Nanotechnology, Biomechanics, (Bio-)Medical Engineering, Physics, Chemistry, Mechanical Engineering or a related field
- Strong interest in bone, biological materials, biomechanics and mechanical properties
- You are dedicated to pursuing a successful career in research, development or education either in academia or in industry
- Ideally, experience with (nano-)mechanical testing and/or biological materials/biomechanics

### Our offer

First year part-time position (20h/week), after one year full time position (40h/week). Salary based on TV-L E 13. Opportunity to participate in national and international conferences. Academically stimulating environment. Many official and unofficial institute activities (summer party, yearly retreat symposium, skiing trips, ...)

### Institutional values

FAU Erlangen-Nürnberg is committed to international standards, transparent performance agreements, equal opportunity, inclusivity, support for under-represented groups, an inclusive culture, and diversity. The university also prioritizes the needs of dual career couples and is recognized as a family-friendly employer.

## How to apply

We look forward to receiving your application documents in PDF format sent to:  
[michael.wurmshuber@fau.de](mailto:michael.wurmshuber@fau.de)

Application documents should include

- a motivation letter,
- a curriculum vitae,
- copies of bachelor and master theses (as available),
- a list of publications (if applicable),
- contact information of two references (+ optional reference letters)

Read more about the COHESION project here:

<https://www.gmp.tf.fau.de/cohesion-composition-and-mechanics-of-cement-lines-in-cortical-bone/>

**Dr. Michael Wurmshuber**  
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