OPEN CALL – PhD position

Host (recruiting) organisation

Technische Universität München, Germany

Project Title: Computational modeling of the complex swelling process of foams

Supervisory team

Primary academic institution	Industrial institution
W. A. Wall, C. Meier	S. Andreae
Technische Universität München	Hilti
Secondary academic institution	
N. Moes, L. Stainier	
ECN	

Project description

A variety of foam products are used in building industry and e.g. serve as thermal barriers, for filling gaps and even for fixing parts like doors and windows instead of more complicated fixing systems. In order to improve, in the sense of handling and efficiency, those products, especially for sensitive applications, a reliable predictive simulation approach is needed.

The aim of this project is to develop a computational model that is able to simulate such filling and expansion processes. Hereby, the topological expansion including the question of fill grad and cavities as well as the pressure rise due to curing is of interest. Since the foam can swell up to 1000% and may interfuse with itself, the numerical description is very challenging.

Benefits

- Research supervision and training by recognised international experts in computational mechanics
- Integration within R&D activities of an industry leader
- Doctorate degree from both TUM and ECN
- 36 month full-time employment contract
- Additional mobility and family allowances

- Access to state-of-the-art research and computing facilities
- Training in transversal skills (e.g. communication skills, entrepreneurship)

Prerequisites
- To have a strong undergraduate and MSc degree (or equivalent) in Engineering, (Applied) Mathematics, Physics or a related field and a good level of English
- To have an enthusiastic attitude to conduct research, being hard-working and critical
- To have a strong background in (fluid and/or solid) mechanics, numerical methods, etc.
- To demonstrate knowledge of a programming language such as C++, Fortran, etc.

Eligibility
Applicants shall, at the time of recruitment by TUM, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when a researcher obtained the degree, which would formally entitle him/her to embark on a doctorate, irrespective of whether or not a doctorate is or was ever envisaged.

At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in Germany for more than 12 months in the 3 years immediately prior to the reference date.

Duration of the project
The total duration of the project is 36 months.

Obligations of ESRs (Early Stage Researchers)
- Completion of the PhD programme
- Be highly committed with high quality research, training and management. The successful candidate is expected to become a future leader on the development and application of advanced computational methods for industry
- Take part in the mobility programme both in academia and industry
- Participate in the dissemination and outreach activities associated to the project
- Attend international conferences and present the research undertaken
- Contribute to the writing of articles in high impact international journals

Closing date
Until position is filled

How to apply
http://www.lacan.upc.edu/ProTechTion

Questions
protechtion.itn@upc.edu