



# UNIVERSITÄT KOBLENZ · LANDAU

The Institute for Integrated Natural Sciences, Department of Physics, University Koblenz-Landau, Campus Koblenz, is inviting applications for a

## Doctoral Position Polymer Physics/Polymer Engineering (0,75 EGr. 13 TV-L)

is subject to the German law on fixed-term contracts in science (WissZeitVG). The position can be filled immediately and is initially limited to one year. Continuation of the appointment up to 3 years is intended. The successful candidate will work in the [Material Physics Group](#) of the University Koblenz-Landau.

### Topic:

We are studying the flow behavior of complex liquids as they occur in processes such as extrusion, fiber spinning and injection molding. We are especially focused on the occurrence of “shear bands”. Shear band formation refers to the coexistence of localized bands of different shear rates but same stress, and has been observed in various soft materials including semi-concentrated polymer solutions as used in fiber spinning. Shear bands can differ in their microstructures but the underlying microstructural mechanism for shear band formation for the large part is not understood as yet. This phenomenon is undesirable in applications, as it can lead to inhomogeneity in processing and in material properties. The goal of this PhD work is to proof new theoretical approaches experimentally using particle imaging velocimetry, video particle tracking, rheological and scattering methods, with the aim of correlating microstructure, complex rheological behavior of these liquids and the properties of the finished product. The project is a joined collaboration with the [Fluid Dynamics of Complex Biosystems Group](#) of the Technical University of Munich and is funded by the German Research Foundation (DFG).

### Requirements:

The successful candidate requires a master degree in Physics, Applied Physics, Polymer Engineering, or similar fields. Proven theoretical and practical experience in optics and/or polymer science, fluency in both written and spoken English and the ability to work in an interdisciplinary team are mandatory. Additional knowledge in one of the following disciplines is desirable: rheology, video particle tracking, particle imaging velocimetry, MATLAB, LabVIEW. Very strong problem-solving skills, willingness to learn, ability to work independently, experience in writing publications and good presentation skills are essential. The position also includes close interaction with the collaborating group and frequent stays at their site.

Please contact Prof. Dr. Silke Rathgeber (phone: +49 (0)261/287-2353 or e-mail: [rathgeber@uni-koblenz.de](mailto:rathgeber@uni-koblenz.de)) for further information.

It is the policy of the University Koblenz-Landau to increase the percentage of female employees. If equally qualified, preference will be given to female applicants in fields where they are underrepresented. Disabled candidates are given priority, if equally qualified. International candidates are highly encouraged to apply.

Applications should include a letter of motivation, complete curriculum vitae with a list of publications and presentations, certificates etc. Please send your application, quoting the **reference number Ko 30/2018**, before **October 02<sup>nd</sup>, 2018** by e-mail in a single PDF file to [bewerbung-K21@uni-koblenz.de](mailto:bewerbung-K21@uni-koblenz.de). Late applications can be considered until the position is filled.

We do not send a confirmation of receipt. In accordance to the protection of data privacy all documents will be destroyed after the application procedure.

[www.uni-ko-ld.de/karriere](http://www.uni-ko-ld.de/karriere)