



Horizon 2020 - Marie Skłodowska-Curie Actions  
Innovative Training Network (ITN)  
Complex Rheologies in Earth dynamics and industrial Processes

*In the frame of the research and training Marie Skłodowska-Curie Actions of the European Community, the Johannes Gutenberg-Universität Mainz invites applications of highly motivated individuals for an Early Stage Researcher (PhD) position starting from September 1<sup>st</sup>, 2015*

**Rheology and deformation of glass under extreme conditions**

Supervisor: B. Kaus (Johannes Gutenberg-Universität Mainz, DE) & C. Kunisch (Schott AG, DE)

Collaborations: D. Mainprice & S. Demouchy (Geosciences Montpellier, FR)

The aim of this Ph.D. project is to study the rheology of glass under elevated pressure. The rheology of glass is usually measured by indentation tests at room temperature, but the present picture is too coarse, as the deformation is heterogeneous and the actual pressure and temperature beneath the indenter tip cannot be measured. In this project, we will perform laboratory experiments to characterize the rheology of glass under elevated pressures (and temperatures, yet staying below the glass transition temperature). Precise measurements of both stress and strain will be made to determine the influence of pressure on the rheology. The obtained creep laws will be implemented in numerical models. This work will lead to a better understanding of how glass interacts with other materials (such as metals) and open the possibility to use glass for new (and extreme) industrial applications.

This project will be performed in collaboration between the Johannes Gutenberg-University Mainz, Schott AG, which is a leading European technology group in the areas of specialty glass and ceramics, and Geosciences Montpellier, which is a major Earth Sciences research laboratory in France. It will therefore include internships in both the SCHOTT premises in Mainz and the experimental deformation laboratory in Geosciences Montpellier (France).

**Requirements:**

- Applicants must not have resided or carried out their main activity in Germany for more than 12 months in the 3 years immediately prior to their recruitment.
- Applicants must be in the first four years of their research career and do not have a PhD degree. Time is measured from the date of award of the Master degree (official maternity/paternity leaves excluded).
- Applicants must hold a Master degree in material sciences, geosciences, physics.
- Applicants must have strong experimental work skills, and be highly motivated to work in an international team. Prior programming skills are an advantage but not a must.
- Applicants must have excellent written and spoken English skills. A grasp of German would be also useful.
- Knowledge on glass or rock rheology, or viscoplastic deformation processes in crystalline materials.

**Employment conditions:**

- Participation in the EU-funded innovative training network CREEP, which encompasses 16 Ph.D. projects in 10 major research groups in geodynamics in Europe (Montpellier, Bristol, Durham, UCL, Utrecht, ETH Zurich, FAST-Orsay, Roma 3, Mainz, Munster) and 11 private-sector partners (Schlumberger, Baker Hughes Schott, APERAM, AkzoNobel, MP Strumenti Reykjavik Geothermal, IGEM, GMuG, Geospatial Research).
- A 36-month full employment contract with social security, a net monthly salary between 2050€ and 2350€ depending on the family situation at the time of the contract signature
- Guaranteed funding for the research project and training activities.
- A personalized training program mutually agreed on recruitment, which will directly reflect the candidate training needs and career objectives.

**Application Procedure**

- Applicants should apply via our [online application procedure](http://www.itn-creep.eu) (<http://www.itn-creep.eu>). Once the application is received, they will receive an email asking for their CV and academic credentials (mark sheets and degree statements).
- Deadline for applications: 30 May 2015.

A complete description of all 16 CREEP PhD positions and training program and online application forms can be found at <http://www.itn-creep.eu>

For additional information please mail us : [kaus@uni-mainz.de](mailto:kaus@uni-mainz.de)