



Institut für Geologie, Baltzerstrasse 1 + 3, CH-3012 Bern

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**UNIVERSITÄT
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Institut für Geologie

PhD student position in Computational Petrology: simulation of reactive multi-phase fluid flows in medium to high-grade metamorphic terranes

The computational petrology and geochemistry group hosted at the Institute of Geological Sciences, University of Bern is seeking a PhD student to contribute in the development of new petrological and numerical tools to identify and quantify fluid fluxes in natural metamorphic rocks.

The open position is fully funded for 36-48 months, within the framework of the Horizon 2020 ERC StG project [PROMOTING](#). The project involves close collaboration with Dr. Nicolas Riel at the University of Johannes Gutenberg, Mainz, Germany. The PhD candidate is expected to develop a strong multidisciplinary profile combining both analytical petrology and numerical modeling skills.

There are two main objectives of this PhD project. (1) The group effort development of a three-phase flow model accounting for reactive melt and aqueous fluid migration through a compactable visco-plastic porous medium. The fluid dynamic code will serve as a basis for quantitative investigation of aqueous fluid/melt pathways, flow rates and chemical fluxes in the Earth's crust. (2) The application of quantitative compositional mapping at the rock scale to explore the repartition of trace elements at the rock scale in migmatites. These new tools will be applied to a suite of rock samples (El Oro Complex, Ecuador) distributed along an anatectic gradient.

We are seeking a motivated student with strong skills in scientific programming (e.g. Matlab, Python) and, if possible, in computational fluid mechanics (e.g., Finite Difference Method). Experience with fieldwork and/or analytical skills (LA-ICP-MS, EPMA) will be an advantage.

Interested candidates should send their inquiries and applications, including a cover letter (max. 1 page stating the research motivation and interests), a detailed CV (including academic background, previous research/publications and/or industrial experience as well as the names and contact information of 2-3 referees) to Prof. Pierre Lanari (pierre.lanari@geo.unibe.ch) before 29th of May 2020.