

## Post-doctoral position EPFL/IUSTI Marseille

# Hysteresis in particulate suspensions and granular media

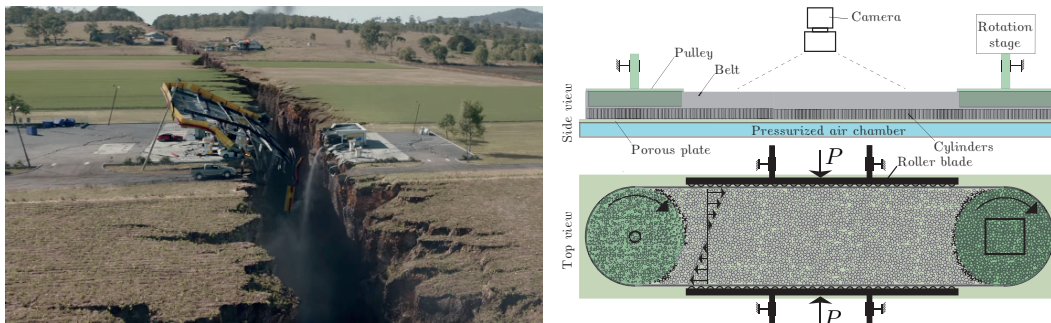


Figure 1: Example of seismic faults (top) and experimental set-up to investigate the hysteretic behavior of a model granular media (bottom).

**keywords: hysteresis, granular media, suspensions, friction.**

One open position is immediately available for a postdoctoral scholar with expertise in experimental physics. The post-doc will be formally hired by EPFL in Lausanne in the Physics of Complex Systems Laboratory headed by **Matthieu Wyart**. The experimental work which forms the bulk of this project, will be performed at IUSTI Marseille in the group of **Bloen Metzger** and **Yoel Forterre**.

The macroscopic friction of flowing particulate materials can be smaller than at rest. This property is responsible for important intermittent phenomena in geophysics, including earthquakes and landslides. However, it is not understood even in simple granular materials, where it is responsible for hysteresis of the angle of repose. The aim of this project is to study the microscopic origin of macroscopic friction in granular materials and suspensions, with a special focus on velocity weakening and its role in hysteresis. To this end, we will probe experimentally the role of inertia, the role of inter-particle friction and the role of particle elasticity to understand which of these mechanisms is prevalent in this phenomenology. In addition, crackling-type response preceding yielding could be investigated. Such response is of interest in geophysical contexts, as they relate to precursors of earthquakes in faults.

Contracts are for one year, renewable on common agreement, the starting salary is **81400 CHF** with increment of 1500 CHF every year. Candidates with a strong taste for experiments, soft matter physics and/or geophysics are welcome to send us a CV and a letter of recommendation from their previous advisor.

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