

## "Elastoplasticity: Heterogeneity and Homogenization"

### Abstract:

This is joint work with Alessandro Giacomini. We derive an existence theorem for the evolution of a multi-phase elastoplastic material. The result hinges on a careful analysis of the dissipation on the interfaces between the phases. Then, assuming a periodic microstructure with vanishing period, we obtain a homogenized behavior that cannot be reduced to a single macroscopic evolution, but rather involves an infinite number of internal variables with their individual flow rules.