



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



ITN - MUMOLADE  
Multiscale Modelling of Landslides and Debris Flow



## Winter School on Computational Approaches to Model Multi-phase Porous materials

19<sup>th</sup> to 23<sup>rd</sup> of January 2015, University of Padova, Italy

### Context

Landslides and debris flow pose serious threats in mountainous terrains. The combination of high speed and enormous debris mass has devastating effects, pointing at the importance of reliable predictions. Yet serious insufficiencies in our knowledge and hence in the computational modelling of landslides and debris flow have to be admitted. The multi-phase and multi-scale nature of flow-type fast landslides with varying composition in space and time due to complex segregation phenomena calls for an interdisciplinary approach, bringing together expertise from fields like engineering, geomechanics, physics, and environmental management.

### Goals

The [MUMOLADE initial training network](#) is inviting young researchers working in these fields to participate in this Winter School. A main objective is to provide high quality training to a new generation of multidisciplinary researchers. This school is held at the University of Padova, Italy. Extended courses will be provided on computational mechanics for multi-phase porous materials (from physics to coupled mathematical models and their numerical solution with the finite element method, including lectures on hydraulic fracture, DEM and tumor growth modelling), high performance computing and isogeometric analysis. The scientific challenges of Vajont catastrophic landslide (Italy, 1963) will also be addressed.

### Lecturers

Prof. Dariusz Gawin, *Lodz University of Technology, Poland*  
 Prof. Hans B. Mühlhaus, *University of Queensland, Australia*  
 Prof. Mario Putti, *University of Padova, Italy*  
 Prof. Alessandro Reali, *University of Pavia, Italy*  
 Prof. Bernhard Schrefler, *University of Padova, Italy*  
 Prof. Massimiliano Ferronato, *University of Padova, Italy*  
 Prof. Fabio Gabrieli, *University of Padova, Italy*  
 Prof. Rinaldo Genevois, *University of Padova, Italy*  
 Prof. Carlo Janna, *University of Padova, Italy*  
 Prof. Lorenzo Sanavia, *University of Padova, Italy*

### Grants and Application

The participation fee and travel costs are fully granted. The number of grants is limited 15. For more information on grants and program visit: [Winter School's webpage](#). For application please contact us over the project's website [here](#) until Dec. 18<sup>th</sup>, 2014

