



Laboratoire **Roberval**
Unité de recherche en mécanique

SEMINAIRE ROBERVAL

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Computational modelling of finite-strain elasto-viscoplastic geomaterials

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RESUME

In recent years advances in computational geomechanics and workstation technology has made inelastic analysis of geomechanical problems, mostly based on the finite element method, extensively performed. The constitutive description of the response of geomaterials has traditionally fallen into small strain theoretical framework of elasto-plasticity which uses an additive decomposition of the strain rate. However, despite its importance in predicting failure of engineering and geological materials, relatively little research has been directed to the finite strain regime. The purpose of this talk is to present an efficient algorithmic treatment for large deformations within the framework of multiplicative hyperelastic-based finite strain plasticity. The models under consideration include an elasto-viscoplastic based on the Von-Mises yield criterion and a model based on the critical state soil mechanics.