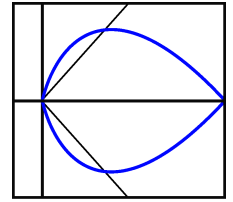




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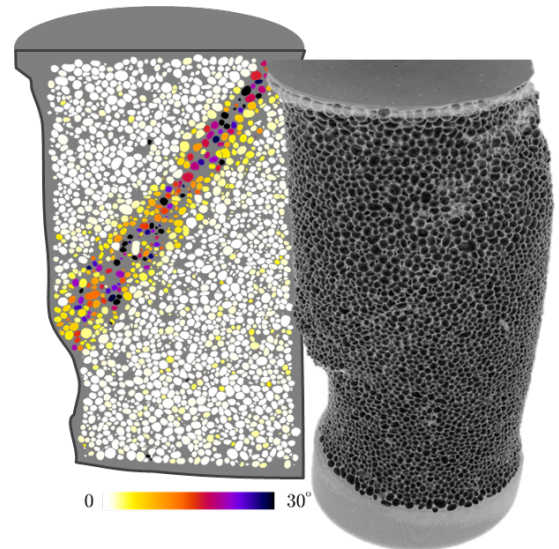
## Deformation of Granular Materials: A Look Within

### Prof. Cino Viggiani

Professor of Solid Mechanics and Civil Engineering at the Université Grenoble Alpes

#### Seminar overview:

Combining x-ray tomography and 3D image analysis has finally opened the way for experimental micro-(geo)mechanics, allowing access to different scales of interest. In this talk a few examples will be presented of the kind of experimental results that can be obtained by means of x-ray micro tomography imaging. Images from x-rays can be analyzed either in a continuum sense (using 3D Digital Image Correlation) or looking at the individual particle kinematics. These advanced techniques offer us a look at what actually happens when a granular material deforms and eventually fails. However, there are issues when the scale of interest is very small, for example the characterization of grain-to-grain contacts (their orientations and evolution), or production of fines by grain breakage. These challenges will also be discussed through a few examples.



#### Biography:

Cino Viggiani was born in Napoli (Italy) and obtained a Ph.D. in Geotechnical Engineering at the University of Roma “La Sapienza” in 1994. He is a Professor of Solid Mechanics and Civil Engineering at the Université Grenoble Alpes in France since 2004. He served in the capacity of Vice-President for Research in Physics and Engineering from 2007 to 2011, and he is the Head of Laboratoire 3SR in Grenoble since 2013. His research involves experimental investigations as well as theoretical and numerical modelling of the behaviour of geomaterials, including localized failure and hydro-mechanical coupling. Applications are principally in geoenvironmental, petroleum, and civil engineering. On the experimental side, he has been developing and using quite a range of soils and rock testing apparatus, as well as advanced methods such as x-ray tomography and Digital Image Correlation.

#### When and where:

Wednesday, 21 Feb, 19:00

1 Newnham Terrace, Darwin College

#### Queries:

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