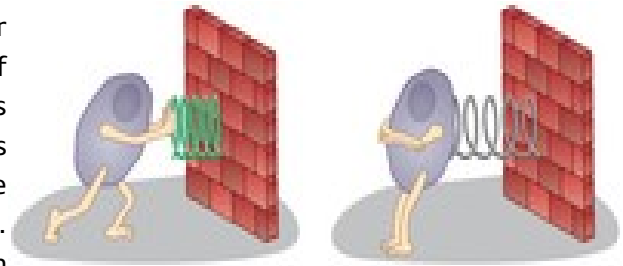


# PHD SEMiNAR #1

## Laure Laforgue: Cancer cell migration in 3D gel

3D migration of cancer cells plays an essential role in the formation of metastasis in cancer diseases. Contrary to 2D case, the behavior of cancer cells migrating in a 3D extracellular matrix is still poorly known. We study how cancer cells migrate in 3D gels and how the properties of the microenvironment can play a role on their velocity. We use human bladder cancer cells and collagen with fibronectin to mimic the extracellular matrix. We image cells embedded in polymerized collagen using a fluorescence and reflection confocal microscope. From these acquisitions, we are able to follow the cell and the collagen fiber over time and determine the velocity and diffusive behavior of the cell in function of concentration of the gel. We also reconstruct the displacement field of the collagen fiber between two times. We will use this displacement field to calculate the 3D traction force of the cell.



## Marine Favier:

The project presented here aims to develop a new technique for the accurate and fast analysis of the sulfur isotopic composition of sulfur containing compounds. These play a fundamental role in geochemistry, atmospheric science, and geo-microbiology. Their analysis by conventional methods is extremely tedious and this has severely hampered the use of these biogeochemical markers in a wide variety of applications.

So far, no commercial optical instrument exists for sulfur isotope measurements. The goal of this project is to develop one with a French PME Ap2E But before final instrument version, we have to make sure that such instrument is sensitive and stable enough to ensure the expected sensitivity for isotopes measurement.



Figure 1 One example of the interest in sulfur isotopic analysis : analysis of sulfates deposited in ice core after volcanic eruption