# Study the Structure, Morphology and Biomechanics of Cells and Tissues Using AFM

Wednesday, June 7th, 2023 | 17:00 CEST | 8:00 AM PDT | 11:00 AM EDT

Join us and special guest speaker Prof. Guillaume Charras from the London Centre for Nanotechnology, University College London, UK, for this webinar on the role of mechanobiology in cell and developmental biology.

Atomic force microscopy (AFM) has emerged as a key platform for the nanomechanical characterization and structural analysis of living biological systems. This webinar will focus on how AFM can be used to study dynamic mechanical processes in living cells, tissues, and individual biomolecules. It will include a live demonstration on the new CellHesion 300, an automated platform for the fast and easy measurement of structure, morphology, and biomechanical properties of biological samples. Automated processes and increased sample size deliver the statistical significance necessary in biomedical and pre-clinical research.

In his talk, Prof. Charras will give an overview of approaches for studying dynamic mechanical changes in cells and tissues and their role in morphogenesis.

## Program - Wednesday, June 7th, 2023

## 17:00 CEST | 8:00 AM PDT | 11:00 AM EDT

**17:00** **Welcome & Introduction**
*Carmen Pettersson, European Marcom Manager, Bruker*

**17:05** **Probing Dynamic Mechanical Changes in Cells and Tissues by AFM**
*Prof. Guillaume Charras, London Centre for Nanotechnology, University College London, UK*

**17:40** **Live Demo CellHesion 300**
*Dr. Torsten Müller, Application Scientist, Bruker BioAFM*

**18:00** **End**

# Study the Structure, Morphology and Biomechanics of Cells and Tissues Using AFM

Wednesday, June 7th, 2023 | 17:00 CEST | 8:00 AM PDT | 11:00 AM EDT

## Abstract and Biography

**Probing Dynamic Mechanical Changes in Cells and Tissues by AFM**

*Prof. Guillaume Charras, Professor in Cell and Tissue Biophysics, London Centre for Nanotechnology*
*University College London, UK*

One of the most fascinating properties of living organisms is their ability to self organise and acquire complex shapes. Morphogenesis is driven by gradients in surface tension and mechanical properties that are generated by changes in individual cells within the embryo. Yet, understanding the shape of cell aggregates from the mechanics of their cells remains challenging. I will talk about approaches to understand dynamic shape changes in early C elegans embryos using measurements of cortical tension obtained by AFM. At later stages in development, we probe the existence of gradients in mechanical tension within embryos and show that they play important roles in guiding morphogenetic events.

*Prof. Guillaume Charras graduated with a degree in Engineering from Ecole Centrale de Paris. After a Master's degree in Bioengineering at Georgia Tech, he obtained his PhD in Biophysics from University College London. Following post-doctoral studies in Harvard Medical School, he started his own research group at the London Centre for Nanotechnology at University College London in 2007. His lab focuses on understanding of how the cytoskeleton controls cell and tissue mechanics by combining techniques from physics and engineering with molecular cell biology, optical microscopy, and AFM.*

**Please don't hesitate to contact us at productinfo.emea@bruker.com if you have any questions.**