University of Nottingham
Nanoscale and Microscale Research Centre

Biofluidic Microscope (BFM) Launch Event

Wednesday 27th November, 10AM - 2PM

A05, nmRC, Cripps South Building, University of Nottingham

Join us at the nmRC as we introduce the BFM - our new hybrid confocal and atomic force microscope. With keynote speakers, case studies and an opportunity to experience the instrument in action!

Agenda

09.45-10.00	Registration (Tea and Coffee)
10.00-10.10	Prof Paul Brown "Introduction to the nmRC" *Professor of Materials Characterisation, nmRC Director, University of Nottingham*
10.10-10.20	Dr Gleb Yakubov "Introduction to the Biofluidic Microscope" *Chair and Professor of Food Biopolymers, University of Leeds*
10.20-11.05	Dr Ioanna Mela "Applications of Correlative AFM in Biology" *Associate Professor, Department of Pharmacology, University of Cambridge*
11.05-11.25	James Vicary *Co-founder and Managing Director of NuNano Ltd*
11.25-11.45	Dr Jacob Pattem *Lecturer Biomaterials, School of Dentistry, Cardiff University*
11.45-12.00	Refreshments (Tea and Coffee)
12.00-12.30	Case Studies
12.30-14.00	Practical Workshop and show and tell sessions (numbers capped)
14.00	Close

How to get here

Nanoscale and Microscale Research Centre
Cripps South Building (Building 53),
University Park,
Nottingham,
NG7 2RD
https://www.nottingham.ac.uk/nmrc/about/findingthecentre.aspx
what3words
strike.bucked.firmly

Visitor Parking: VP (near building 16)

Register

To register for this event please scan the QR code or visit
https://tinyurl.com/BFMLaunch2024

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About the BFM

The BFM is a unique instrument designed for the characterisation of complex biological systems, enabling the probing and elicitation of localised biological responses. It combines Atomic Force Microscopy (AFM), Fluidic Force Microscopy (FluidFM), and Ultra-Fast Confocal Imaging.

Its distinctive feature is the ability to perform high-precision AFM or fluidic force microscopy while simultaneously acquiring high-resolution, down to 120 nm, and time- resolved 3D structural imaging, up to 400 fps, using the Ayriscan 2 with multiplex detection. The instrument features an automated multi-scale positioning system, from nano to sub-millimetre, with a large Z-range positioning capability of up to 100 µm, and an open, flexible architecture that allows for customisation.

Typical measurements enabled by BFM include nano- to micro-scale morphology, mechanical properties, bioadhesion, nanorheology, and protein-ligand interactions. In addition, FluidFM allows for a localised delivery of (bio)chemicals to specific cell surfaces and tissues with video-rate monitoring of their responses. In addition, the use of the FluidFM cantilever as a nano-/micro-pipette to manipulate cells and other particulate objects, such as viral capsids, requiring high-resolution optical guidance.

Furthermore, FluidFm can enable nanoscale 3D printing, where the optical microscope provides UV curing of the printed liquid. We envisage that BFM will open new areas of cross-disciplinary research in biomaterials, soft matter, health, and life sciences.