MONASH University

Monash Centre for Electron Microscopy

Seminar

Seeing with Atoms

Thursday March 11, 2021

11.30am (AEDT)

New Horizons G29/G30, Monash University,

Clayton Campus OR

ZOOM – Register in advance for this meeting:

https://monash.zoom.us/meeting/register/tZwoc-6prTotHda7ybxF47qiBINqo9nCO2F-

After registering, you will receive a confirmation email containing information about joining the meeting.

Professor P.C. Dastoor MA PhD (Cambridge)

Imaging is the key to discovery in science and yet conventional microscopes can damage delicate materials and devices; altering the very structures that they are trying to see. However, the scanning helium microscope (SHeM) opens a new window on science; providing for the first time completely non-damaging imaging using beams of neutral helium atoms. This talk will explain the importance of microscopy in science and describe how the development of the SHeM revolutionises the imaging of delicate materials (such as biological samples) and the potential for damage-free microscopy to impact society. The presentation will also highlight the importance of international collaboration in science and its role in the development of new technology.

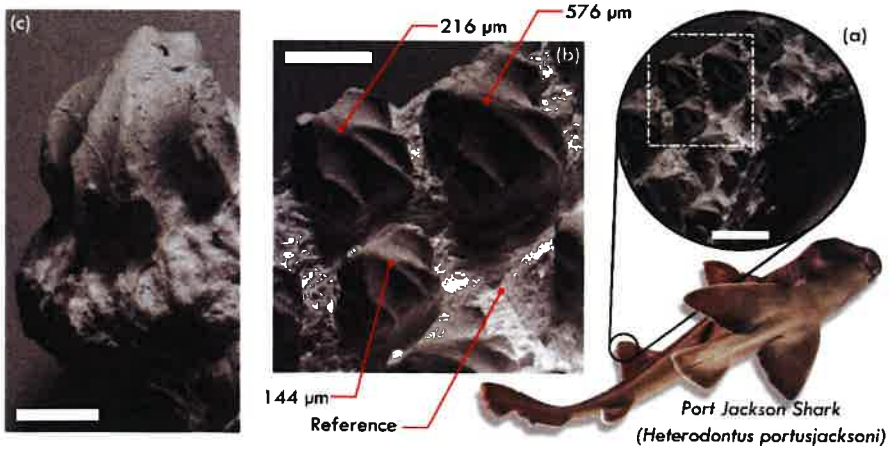

Figure: SHeM images of dorsal skin from a female Port Jackson shark. (a) A ca. 3 x 4 mm section of skin, including several dermal denticles protruding out of the underlying surface. Scale bar 1 mm. (b) Zoomed region of the same area of tissue. 3D SHeM imaging was used to measure the heights of the denticles. Scale bar 500 μm. (c) Micrograph of single denticle. Scale bar 250 μm.

The Presenter

Professor Paul Dastoor is Professor of Physics at the University of Newcastle in Australia. He received his B.A. degree in Natural Sciences and his PhD in Surface Physics from the University of Cambridge. He has been Visiting Research Fellow at Fitzwilliam College, Cambridge, UK, at the Daresbury Laboratory, Cheshire, UK at Nanyang Technological University and Leverhulme Visiting Professor at the University of Cambridge. He is Director of the Centre for Organic Electronics, which he established in 2007.

Prof Dastoor is the UON Node Director for the ANFF Materials Node, which is responsible for delivering advanced fabrication and characterisation facilities to academic and industrial researchers across Australia and overseas. He is also the Ambassador for the NSW Smart Sensing Network (NSSN), which brings together smart sensing expertise in academia, industry and government to develop a strong, collaborative and innovative network that will deliver economic and social benefits for New South Wales.

His research interests encompass the growth and properties of thin films, neutral atom microscopy and organic electronic devices based on semi-conducting polymers. These exciting materials offer the tantalising prospect of paints that generate electricity directly from sunlight and sensors that can be printed as flexible arrays. Prof Dastoor has a strong track record in research translation and commercialisation, with a substantial number of patents granted in the US and Europe (as well as in Australia). He has spun out five companies including his glucose biosensor technology (GBS Inc) which listed on the NASDAQ in 2020.

Convener

Professor Joanne Etheridge
Director, Monash Centre for Electron Microscopy, Monash University

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