

# Monash Centre for Electron Microscopy Seminar



## Optimised TEM Sample Preparation Using Controlled Ion Milling



Friday 6 October, 2017



11.00am – 12.00noon



Science Lecture Theatre S9  
16 Rainforest Walk  
Monash University Clayton  
Campus



### Presenter

**Dr Paul E. Fischione**

**CEO**

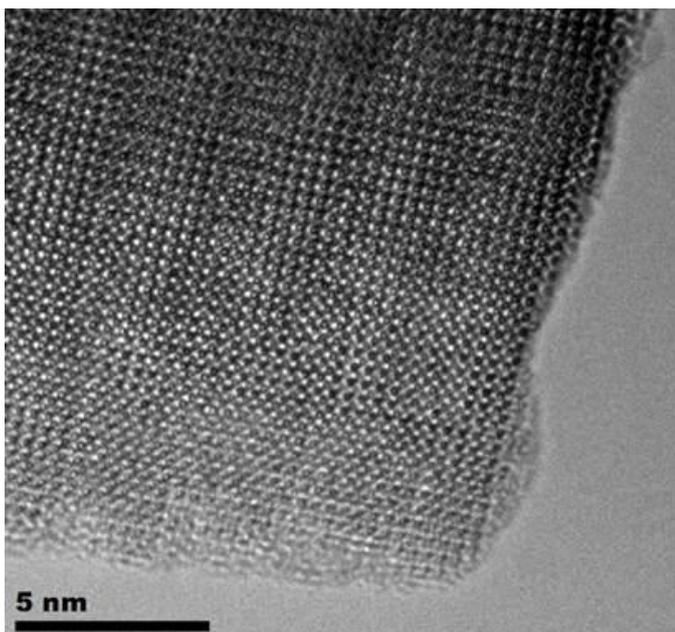
**E.A. Fischione  
Instruments Inc**

### Abstract

Advanced TEM imaging and analysis allows us to investigate materials at the atomic level making it a key technology for understanding and developing next generation materials. However, to achieve optimal results carefully controlled post-FIB ion milling is required.

FIBs have become commonplace in the preparation of TEM samples. While they are highly effective at rapidly thinning bulk specimens into thin lamellae, their high processing energies can create amorphous layers and implant ions such as gallium which can produce TEM specimens that are not representative of the parent material.

For this reason, ion mills are the perfect partner for FIBs for TEM specimen preparation. Their low energies, down to 50eV are ideally suited to final polishing and avoid issues such as amorphisation, implantation and redeposition in FIB-prepared specimens.



These systems also include a host of other features that will assist you to prepare optimised samples for TEM such as:

- Controllable ion beam energy
- Small target area
- Adjustable milling angle
- Specimen rotation
- Cryogenic specimen cooling

In this presentation, we look at purpose-designed solutions like the NanoMill™ and PicoMill™ and optimising their workflows to repeatedly and predictably produce optimal TEM specimens.

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*Visitors are most welcome. Please note that there are designated visitor car parks and tickets, at a cost of \$2.00 per hour or \$10.00 all day are available from parking meters. Payment is by coin, credit card, or phone app. Further details can be found at the following links: <http://www.monash.edu/people/transport-parking/permits/metered-free> and [http://www.monash.edu/\\_data/assets/pdf\\_file/0010/71686/16P-0006-T2-Clayton-map\\_final.pdf](http://www.monash.edu/_data/assets/pdf_file/0010/71686/16P-0006-T2-Clayton-map_final.pdf)*