#### James Watt Nano Fabrication Centre

The Centre has comprehensive micro and nanofabrication facilities housed within 750 m2 of cleanroom space including one of the most advanced large area high resolution electron beam lithography tools in the world. Glasgow University has been engaged in micro and nanofabrication for more than thirty years and has a wealth of accumulated expertise in core fabrication technologies.

High resolution Lithography Precision metal deposition High aspect ratio etching



### Manufacture of 3D detectors Fabrication method depends on material and



#### Cross-section SEMs of 3D pores made by the three methods



3D hexagonal geometry connected in strip and pixel configurations



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## **Design & Fabrication of GaN Diodes**

MSM (metal-semiconductor-metal) diodes

- Schottky (rectifying) contacts
- Interleaving finger design minimised response time



26/06/07

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# **Design for Synchrotron Diodes**



Green - GaN fingers (10µm width, 10µm pitch) 10nm Pd contacts Purple - PCB design for integration to DIP socket

- Entire GaN diode =  $6x20mm^2$
- Solar Blind No need for setup to be
- "light tight"
- Diode can be operated unbiased -0V



- + 519 electrodes at < 30  $\mu\text{m}$  spacing
  - Line width reduced to ~500nm
- + 2053 electrodes at 60  $\mu\text{m}$ 
  - Line width 1mm
  - Area ~ 7 mm<sup>2</sup> 26/06/07



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## Electrode arrays

