

# Surface Modifications with Carbon Nanotubes—What might be possible?

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This presentation will examine recent developments at Flinders using carbon nanotubes to modify substrates for various future applications. Nanotubes have many special properties which when applied to surfaces can alter the properties of the interfaces or perhaps give them new found properties. The talk will focus on construction of new generation solar cells on glass surfaces, new ultrasensitive biosensors for detection of heavy metals, new approaches to water filtration and potential new approaches to integrated circuits.

## **Biography:**

Joe Shapter obtained his Ph. D. from the University of Toronto in 1990. From 1990 to 1996, he worked at the University of Western Ontario (London, Ontario) building a scanning tunnelling microscope (STM) and lecturing first year chemistry. He was appointed as a lecturer at Flinders in 1996 and is now Professor of Nanotechnology.

Joe was the key player in setting up the Nanotechnology degree at Flinders which was without precedent and has been Course Coordinator for the Bachelor of Science Degree in Nanotechnology (2000-2003, 2007- present).

He currently leads a very active research group and is supervising 8 Ph. D. students and 2 honours students in addition to several post doctoral fellows who work in the group. Our group is working generally in the area of nanotechnology using various techniques to examine material on the micron or nanometer scale. Attachment of carbon nanotubes to surfaces to build useful electrodes is one area of research interest in our group. Additionally, our group builds phospholipid bilayers on substrates such as mica and uses physical techniques to examine properties and dynamics on the micron scale.