

Carbon Nanotubes for Electron and X-ray Sources

Electron sources for displays, lighting, and x-ray applications

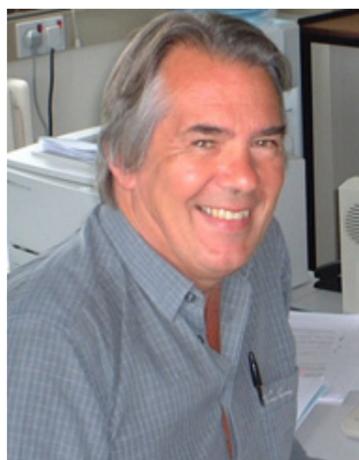
Professor Bill Milne FREng, FIET, FIMMM has been Head of Electrical Engineering at Cambridge University since 1999, Director of the Centre for Advanced Photonics and Electronics(CAPE) since 2004 and Head of the Electronic Devices and Materials group since 1996 when he was appointed to the '1944 Chair in Electrical Engineering'. He was elected as Fellow of the Royal Academy of Engineering in 2006 and was awarded the JJ Thomson medal from the IET in 2008. Prof Milne set up the Electronic Devices and Materials group, which now has 7 Staff members, approximately 30 Post doctoral research staff and Fellows and over 50 PhD students.

Because of their unique properties including their shape and current carrying capabilities Carbon Nanotubes are ideal as electron sources. The emitters studied in this project are based on regular array of vertically aligned CNTs. Such a cathode design allows us to minimize electric field shielding effects and thus helps to optimize the emitted current density. The objectives of this work are to develop a cathode that is able to deliver a stable current density of 1A/cm² at DC and even higher in pulsed mode, for x-ray sources, and to produce cheap, stable light emission sources for lighting applications such as backlighting which are able to run at comparatively high pressures to provide 1 mA/cm².

Other technologies that Prof Milne is currently working on include: Solar Cells

Prof Milne's areas of expertise:

- Large area Si and Carbon based electronics
- Thin film materials
- Carbon nanotubes
- MEMS devices



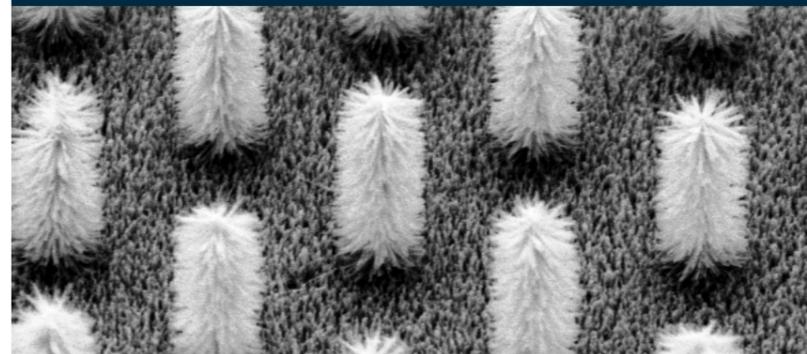
Professor Bill Milne
Head of Electrical Engineering Division, Cambridge

Applicable to:

- Displays
- Lighting

Partner Companies:

- Thales
- Nokia
- Samsung
- Aixtron



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