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CENTRE D'INVESTIGACIÓ
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CAMPUS UAB. BELLATERRA. BARCELONA

SEMINAR

The Rise and Fall of Ferroelectric Memories: Why are we doing all this?

Prof. Jim F. Scott - *Director of Research, Cavendish Laboratory, Cambridge University, UK*

In the 1980s the invention of ferroelectric memories appeared to be a breakthrough: They were faster than magnetic memories, used much less power, were non-volatile (don't forget or erase when power is interrupted), and 1000x times faster to erase and rewrite than FLASH EEPROMs (electrically erasable programmable read-only memories). Samsung made them as large as 64 Mbit, and Fujitsu and SONY put them in the SONY Playstation 2 (but NOT the Playstation 3).

The inventors (us!) should have made billions of euros. And then it ended. We could not keep pace with Moore's Law. So now we are trying three new approaches: Three-dimensional nanotube devices; ferroelectric memories that are multiferroic and magnetoelectric (electric WRITE; magnetic READ operations); and resistive random-access memories (RRAMs). That involves quite a lot of new physics and materials science, which I will try to explain in each case.

REMEMBER

Prof. Jim Scott

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Invited by: Dr. Gustau Catalán

Tel.: +34 93 737 26 06
www.cin2.es
www.icn.cat

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