



12th February 2013 - 16:00
Building 99, room IV – O1.111

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High brilliance X-rays from compact sources

The performance of compact x-ray sources based on Inverse Compton Scattering (ICS) is expected to be a million times brighter than existing lab-based sources, approaching that of first generation synchrotrons, but with femtosecond pulse duration. This x-ray performance will be reviewed, and innovative technical approaches using both a 4K superconducting linac and a high efficiency copper linac will be discussed.

In addition a novel method of coherent x-ray emission from a nanostructured electron beam will be presented. If successful, it will allow production of intense coherent ultrashort x-ray pulses from a small accelerator. Conventional ICS scattering produces incoherent x-rays due to physics similar to undulator emission. The new method promises to increase the x-ray intensity and narrow the bandwidth by orders of magnitude, similar to the performance gain that an xfel enjoys over spontaneous undulator emission.

Coherent Inverse Compton Scattering

