

**COLLOQUIUM  
OF  
THE INSTITUTE FOR QUANTUM INFORMATION SCIENCE**

**3:00 pm Wednesday 19 April 2006 in SB 144**

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**Bio:** Terry received his PhD from York University in Toronto in quantum optics and was a postdoctoral fellow at the University of Vienna and at Bell Laboratories before joining Imperial College, London, as a member of the Physics Department. Amongst his many significant achievements, he is best known as a founder of research into "superselection in quantum information", for his "horticultural approach to optical quantum computing" (which drastically reduces resource requirements), and for co-discovering the best protocols for quantum bit commitment and both weak and strong quantum coin flipping (which are important for quantum cryptography).

**Title:** **Towards optical quantum computation with realistic devices**

**Abstract:** The primary technological hurdle facing linear optical quantum computation is commonly thought to be the construction of efficient sources and detectors. I will argue that the primary hurdle is in fact theoreticians who haven't devoted enough time to thinking about whether we can get by with the devices we have. In defense of this thesis I will discuss how, by making use of some neat features of cluster state computation, we can get by with much more noisy devices than one might have hoped, and why I am optimistic that smarter theoreticians than me should be able to relax these fault tolerant thresholds even further.

