

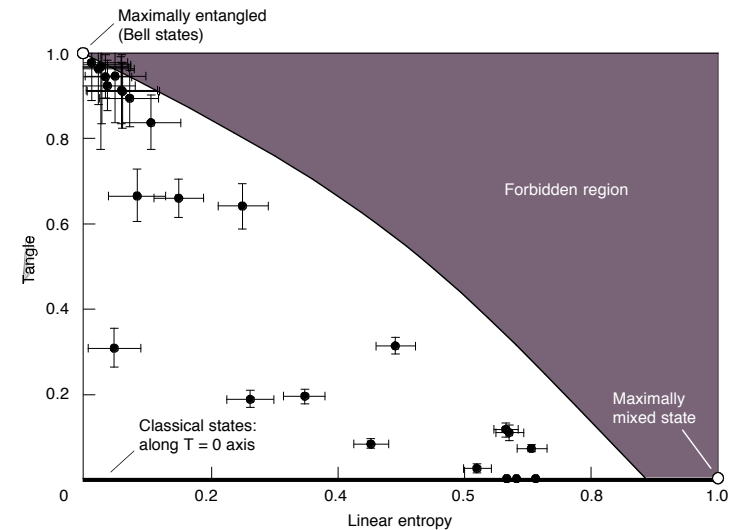
# Measuring and Characterizing Quantum States and Processes



**Daniel James**

Canadian Research Chair in AMO Physics  
University of Toronto  
BS Oxford, PhD in Optics, Rochester 1986  
Postdoc, LANL

I will give an introductory overview of current experimental techniques used to characterize the density matrix of a system and the quantum process describing a device, with emphasis on applications in quantum optics.



**3:00 pm Monday, April 9, 2012**  
**Sloan Auditorium, Goergen 101**

# Measuring and Characterizing Quantum States and Processes

**Professor Daniel James, University of Toronto**

## **Abstract:**

I will give an introductory overview of current experimental techniques used to characterize the density matrix of a system and the quantum process describing a device, with emphasis on applications in quantum optics.

## **Biography:**

Daniel James is a Welshman, born in rainy Manchester within site of Old Trafford, (the home of Manchester United, the most successful sports team in record human history). He was educated at the Manchester Grammar School (1975-82), New College, Oxford (1983-86) and at The Institute of Optics, University of Rochester (1986-92), where he earned his Ph.D. in Optics in 1992 under the tutelage of Prof. Emil Wolf. From 1994 until 2005 he was a staff member in group T-4 (Atomic and Optical Theory), Theoretical Division, Los Alamos National Laboratory. Since September, 2005 he has been the Tier-1 Canada Research Chair in Atomic and Optical Physics at the University of Toronto. His scientific accomplishments include the first tomographic characterization of an entangled quantum state; the demonstration of quantum teleportation with atoms, and the implementation of a simplified version of the Shor factor-finding algorithm with entangled photons.