



# PHYSICS AND ASTRONOMY COLLOQUIUM

**Dr. Martin Bureau**

Oxford University

## “Observing Galaxies in 3D”

### Abstract

Central to contemporary astrophysics is the quest to understand galaxy formation. Much of this understanding comes from observations across the electromagnetic spectrum, using a variety of technologies. Here I will describe how one can obtain three-dimensional observations of galaxies, using so-called integral-field spectrographs at optical/infrared wavelengths and interferometric imaging at radio/mm wavelengths. I will then illustrate the power of these techniques for the study of elliptical and lenticular galaxies. First, I will show that most elliptical galaxies are really disk (i.e. spiral) galaxies in disguise, and that the specific angular momentum of the stars appears to be the key parameter determining their evolution. Second, I will show that far from being "red and dead" as generally assumed, elliptical and lenticular galaxies harbour a significant amount of molecular gas, the fuel for star formation. The origin of this gas can be constrained, and it provides a new laboratory to study star formation itself.

Wednesday, March 21, 2012

3:30 p.m.

Bob Wright Centre

Room A104