

# Seminar

Friday, 21<sup>st</sup> May 2010

11 am - Room 701

[Assoc Prof Charles Hellaby,](#)

[University of Cape Town,](#)

Erskine visitor in the Physics and Astronomy Department from 26 April - 4 June 2010

## ***The Geometry and the Mass of the Cosmos***

Einstein's field equations say that gravity is not a force, it is the curvature of spacetime. They relate the spacetime geometry and curvature to the matter distribution. The ultimate application of Einstein's equations would be to deduce the geometry of the cosmos from observations of its matter content. I describe progress towards a method for doing this, and some of the difficulties involved. As cosmological observations become more accurate, detailed knowledge of our cosmic geometry will be needed. Standard models assume homogeneity, but can we test this with new or future observations? Cosmological observations are limited to the past null cone: the speed of light means we only see each galaxy, cluster, etc at a fixed time in the past. Because of this, a homogeneous universe does not look homogeneous, and this makes it tricky to verify.

*All Welcome*

### Contact Details

For further information phone 364 2404, or visit our website: [www.phys.canterbury.ac.nz](http://www.phys.canterbury.ac.nz)