

# Seminar

Friday, 1<sup>st</sup> October 2010

11 am - Room 701

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## ***Standard Candle Tests with Type 1a Supernovae***

Type 1a supernovae (SNe Ia) are thermonuclear explosions powerful enough to be visible over redshifts of up to 2. Although the exact mechanism of their generation is still a matter of debate, their physics is sufficiently uniform and well understood for them to be used as standard candles. In probing such length scales, SNe Ia observations provide a testing ground for the cosmological models that describe the large-scale behaviour of the universe. The discovery that the expansion of the universe is accelerating is due to the development of SNe Ia cosmology: they are the most direct probes we have into physics beyond the standard cold dark matter model.

This talk describes how SNe Ia are used as standard candles. I will describe their photometric and spectral features and how the observed fluxes and redshifts are converted to distances. Then I will discuss some of the systematic uncertainties that make supernova cosmology something of a black art. For example, they offer an opportunity to investigate the nature and distribution of dust in other galaxies, and there is an interesting degeneracy in some light curve fitters between treatment of extinction due to host galaxy dust and the possibility that we live in a local void.

*All Welcome*

### Contact Details

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