IoA Cambridge

X-ray Reflection as a Probe of Accreting Black Holes

Material spiralling into black holes powers some of the most luminous objects we see in the Universe; AGN and galactic black hole binaries. X-rays are emitted from a corona of energetic particles around the black hole and are seen to reflect off of the accretion disc. As well as being impressive objects in their own right, the black holes in AGN can emit such large amounts of energy that they are important in governing the growth of galaxies and clusters.

Through detailed analysis of the observed X-ray spectrum and the variability of the detected emission showing reverberation time lags between the directly observed continuum and the reflection, it is possible to detect the emission from material right down to the innermost stable orbit around the black hole.

I will discuss how these observations, combined with general relativistic ray tracing simulations give us a multidimensional view of the accretion and emission processes, allowing us to locate the site of X-ray emission and trace how its properties change in time, giving us insight into the underlying processes powering these extremely luminous object.

cosmological structures evolving in a certain background universe. For this reason, the observations and the analysis of the CMB anisotropies supply substantial information about the composition and the large-scale structure of the universe. Cosmological structures produce correlations in the CMB temperature distribution through various effects which change photon frequencies. The correlation at a given angular scale, q, is measured by the associated C_l quantities (l= /q). Due to the thickness of last scattering surface, primary anisotropies are erased at angular scales < 8' (l >

Saint Mary's University

Studying Americium in America using Berkelium in Berkeley.

This talk will be, in the main, a general overview of some ways in which nuclei are interesting, and some of the interesting ways in which they get studied. The talk will include some motivations for studying nuclear reactions, and spontaneous and excited-state nuclear decays. It will also encompass explanations of how the measurements are made. In the end, I will describe some unexpected results from a study of americium we undertook at Lawrence Berkeley National Laboratory and Lawrence Livermore National Laboratory.

Location: Dalhousie University - Dunn 101

University of Winnipeg

Committee on Science Learning: Computer Games Simulations, and Education. Margaret A. Honey and Margaret L. Hilton (Eds.), Board on Science Education, Division of Behavioral and Social

Sciences and Education. Wa

Magnetic Activity Cycles and the Solar