

High resolution x-ray spectroscopy and chemical evolution in galaxies and clusters

M. Loewenstein

NASA/GSFC and University of Maryland, College Park

Chemical evolution models for elliptical galaxies and clusters of galaxies are constructed and compared to the elemental abundance patterns derived from current X-ray spectroscopic observations – including newly analyzed high resolution spectroscopy of ellipticals with the XMM-Newton RGS. Constraints on star formation histories and initial mass functions are derived, and various aspects of supernova physics (e.g. SNIa time delays and nucleosynthetic yields) are evaluated. The potential for future sensitive high resolution imaging spectroscopy in advancing these studies is discussed.