

THE ENRICHMENT OF THE INTRACLUSTER MEDIUM

Galactic Winds, Dwarf Galaxies, and Bimodal Star Formation in Ellipticals

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Overview

Recent observational evidence for steep dwarf galaxy luminosity functions in several rich clusters has led to speculation that their precursors, via supernovae (SNe)-driven galactic winds, may be the source of the majority of gas and metals inferred from intracluster medium (ICM) x-ray observations (Trentham 1994). Utilising a fully self-consistent photo-chemical evolution package (Gibson 1995), and insisting that the post-galactic wind dwarfs obey the observed colour-luminosity-metallicity relations, we demonstrate that the bulk of the ICM gas does **not** originate within their precursors (Gibson & Matteucci 1995).

In a parallel study, we consider the present-day photo-chemical properties of elliptical galaxies, adopting the bimodal star formation scenario of Elbaz, Arnaud & Vangioni-Flam (1995). Based upon chemical evolution arguments *alone*, this scenario has been invoked by them to explain the observed metal mass, and their abundance ratios, in the ICM of galaxy clusters. Our fully self-consistent photo-chemical evolution analysis of their model highlights its failings: their predicted V-K colours are > 1 mag too red; their luminosity-weighted metallicities > 0.7 dex too high; and their predicted metallicity dispersion is virtually non-existent (< 0.2 dex, versus the > 3 dex implied observationally) (Gibson 1995).

References

- Elbaz, D., Arnaud, M., Vangioni-Flam, E., 1995, A&A, in press (and these proceedings)
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