Chemical Enrichment of Clusters of Galaxies and the Large Scale Structure of the Universe

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Galaxy clusters are unique astrophysical laboratories which allow us to study nucleosynthesis and the chemical enrichment history of the Universe. The deep gravitational potential wells of galaxy clusters hold all of the metals ever produced by stars in member galaxies, making them archaeological treasure troves to study the integrated history of star formation. The dominant fraction of the metals in clusters currently resides within the hot intra-cluster medium, where their abundances can be measured accurately via X-ray spectroscopy. I will review the observational constraints on the chemical enrichment of the intergalactic medium and on the supernovae which dominated the enrichment. I will also discuss the implications of recent results for the feasibility of mapping the warm hot intergalactic medium permeating the filamentary cosmic web via high resolution X-ray spectroscopy.