

## Cold and Hot Baryons in the Most Distant Galaxy Clusters

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I will review recent observations of the baryonic content of very distant galaxy clusters in their cold (galaxies) and hot (intra-cluster medium) phases, whose formation and evolution are closely linked to each other. New constraints on the evolutionary state of the early type galaxies in clusters at  $z > 1$ , their stellar masses, ages and star formation histories are obtained by a combination of studies with HST-ACS, VLT and Spitzer. Chandra and XMM observations of distant and nearby clusters are giving new insights on the evolution of the thermodynamical state of the X-ray emitting intra-cluster medium and its metallicity. The interpretation of these multi-wavelength observations is providing the first clues on the interaction between galaxy formation processes and intra-cluster medium, a vital input for theoretical models and simulations which try to reconstruct the evolutionary history of cosmic baryons.

*BDMH 2004 – Baryons in Dark Matter Halos  
5–9 October 2004  
Novigrad (Croatia)*