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The Effect of Luminosity Cuts on Inferred Mass of Galaxy Clusters

To estimate the mass of a galaxy cluster one must assume that the measured velocities of the cluster members are distributed the same as randomly drawn test particles of a virally bound system. However, the specific distribution of dark matter may invalidate this assumption. Several simulations have shown that this effect could be as large as 20%. I have been able to examine coma cluster as a preliminary cluster to be able to test the distribution of velocities at different luminosity cuts. Over the summer I would be applying the method I have used with the coma cluster to look at other clusters to check if other clusters have similar distributions in similar luminosity cuts and what effect this has on the inferred mass.