Galaxy clusters are the most massive gravitational accelerators in the universe, with their assembly proceeding through collisions — often spectacular — which shock-heat and mix the intracluster medium, generate turbulence, amplify and reorder magnetic fields, accelerate cosmic rays, and in general make it difficult for us to measure the cluster masses. Comparable havoc in the cluster cores can be created by the central supermassive black hole. At the same time, the success of large cluster surveys to constrain the cosmological model depends critically on our ability to measure the dark and luminous matter distribution in clusters, which in turn depends on precise understanding and modeling of the above phenomena. The last two years saw important developments towards this goal. Data from new instruments such as NuSTAR, ALMA, Planck, JVLA, LOFAR, ultra-sensitive observations with Chandra, XMM and Suzaku, new gravitational lensing surveys, as well as improvements in our theoretical understanding of cluster hydrodynamics and plasma physics, and first results from ab-initio simulations of the intracluster plasma, make this a particularly intriguing time to study galaxy clusters.

We therefore invite you to join us March 15-20, 2015, at the third SnowCluster meeting in Snowbird, Utah, nestled within the spectacular Little Cottonwood Canyon, to engage in these exciting discussions on the physics of galaxy clusters.

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Physics of Galaxy Clusters

www.physics.utah.edu/snowcluster