

Department of Physics and Astronomy

Pauline Wang

Mentor: Amber Miller and Reshmi Mukherjee

## Building Instrumentation for Observing the Sunyaev-Zel'dovich Effect

The Sunyaev-Zel'dovich Effect (SZE) is important for the study of cosmology and Cosmic Microwave Background (CMB). SZE describes the interaction between hot electrons in clusters of galaxies and CMB photons. Along with X-ray imaging data, the redshift independent SZE measurement provides unique insights to the calculation of cosmological parameters by looking at the cluster formation in the early universe. At Amber Miller's lab, we build and test the receivers for observing the SZE. The receivers will eventually be mounted onto an array of telescopes located in California and a survey of the SZE will be conducted through these telescopes. With the cooperation of several academic institutes, we hope through this survey we can further our understanding of cosmology.