

Abstract Submitted
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Extracting the BAO Length Scale from the Galaxy Correlation Function CHAD POPIK, ZACHERY BROWN, REGINA DEMINA, University of Rochester, DESI COLLABORATION — Dark energy is the mysterious substance that is responsible for the accelerating expansion of our universe, and although it constitutes around 68% of the total energy density in our universe, we know little of its true nature. To study dark energy, scientists have been observing important physical processes in the early universe known as the baryon acoustic oscillations (BAOs), which leave imprints on large scale structure that act as standard rulers in cosmology. In our research, we have developed methods of data analysis to identify and extract the BAO length scale from galaxy surveys such as the Sloan Digital Sky Surveys (SDSS) Baryon Oscillation Spectroscopic Survey (BOSS). More specifically, we use Markov Chain Monte Carlo methods to fit the galaxy two point correlation function. These methods of data analysis are being constructed for the Dark Energy Spectroscopic Instrument (DESI), which will observe over ten times the number of galaxies as BOSS and go out to over twice the redshift, giving us a more detailed look into our universe and hopefully into dark energy.

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