

Segev BenZvi – HEP seminar 9/24/2019
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Title: Probing Dark Energy and Dark Matter with Massive Redshift Surveys

Abstract: A wealth of astrophysical evidence indicates that we live in a universe dominated by dark energy and dark matter, but we have little understanding of what these quantities are. Is dark energy a cosmological constant, or does it vary in space and time? Does the accelerating expansion of the universe require the existence of dark energy, or must we explore new models of gravitation on large distance scales? What are the fundamental properties of the dark matter? These and other questions will be explored with unprecedented precision during the next decade as a raft of new astronomical facilities comes online. This talk will explore new constraints on dark energy and gravitation made possible with the Dark Energy Spectroscopic Instrument (DESI), a galaxy redshift survey set to begin taking data in mid-2020. It will also describe probes of the microphysics of dark matter made possible by studying the clustering of galaxies over cosmological length scales.