

MS-DESI, a BAO Experiment to Study Dark Energy

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The mid-scale dark energy spectroscopic instrument (MS-DESI) is currently in conceptual design. MS-DESI will be an exceptionally powerful facility for the Cosmic Frontier research program, mapping the Universe in three dimensions by massively parallel measurements of galaxy redshifts. The experiment will be on sky by 2018 to study dark energy as a Stage-IV project exploiting the baryon acoustic oscillation (BAO) technique. This experiment will build upon the success of the BOSS experiment in demonstrating the power of BAO to study the expansion rate of the Universe. The large-scale structure of the Universe is a key prediction of cosmological models, and MS-DESI observations will allow us to probe diverse aspects of cosmology, from the nature of dark energy, to the neutrino mass hierarchy and absolute mass scale, to signatures of inflation.

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