

P5 Townhall: UT-Austin



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Statement in favor of continued operation of DESI

Dear Particle Physics Project Prioritization Panel (P5),

As faculty members from the universities listed below, we write to you to express our strong support for the continued operations of the Dark Energy Spectroscopic Instrument (DESI) and its extension into DESI-II.

DESI has been an incredibly important tool for each of our universities' research on dark energy, and will be instrumental in advancing our understanding of this fundamental component of the universe. The data collected by DESI has already helped us to make significant progress in our efforts to better understand the large-scale structure of the universe, and to uncover new insights into the nature of dark energy. DESI has exceeded our expectations both in performance and in scientific reach. We expect DESI with its proposed extension, DESI-II, with operations into the next decade, to address important scientific questions including the neutrino mass hierarchy, measures of dark energy at both early and late times, the physics of the early universe including primordial inflation, and the physics of dark matter. DESI-II spectroscopy will also provide important synergies with LSST imaging data.

Furthermore, DESI has played a crucial role in supporting the education and training of the 116 U.S. PhD students involved in the project. The hands-on experience provided by working on DESI has been invaluable for these students, allowing them to gain practical skills and experience that will serve them well in their future careers. These are unique experiences that can be provided by a nimble experiment such as DESI.

In addition to supporting our research and training efforts, DESI has also been an important driver of instrumentation development and advanced methods in computation at several of our universities. The project has brought together a diverse array of experts and researchers, leading to numerous breakthroughs in the development of cutting-edge instrumentation and software tools that can be applied in future experiments.

Finally, we would like to emphasize that DESI in just its first year has already been a scientific goldmine, producing a wealth of valuable data that will continue to be analyzed and explored for many years to come. We strongly support extending the DESI program as presented at the P5 Town Hall on February 22. Given the immense potential of this project, we urge you to recommend to DOE to continue to support its operations into the 2030's, so that we can continue to build on the tremendous progress that has already been made, upgrade the instrument as needed to maintain US leadership, and fully exploit the potential of this exciting new facility.

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