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Latest Cosmological Results from the Dark Energy Spectroscopic Instrument

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The Dark Energy Spectroscopic Instrument (DESI) is a groundbreaking cosmology experiment measuring the spectra of tens of millions of extragalactic galaxies and quasars. Its unprecedented capabilities enable the creation of the most detailed three-dimensional maps of the Universe produced to date. In March 2025, DESI released its latest major cosmological analysis, focusing on the measurement of Baryon Acoustic Oscillations (BAO), a so-called cosmological standard ruler. By measuring the BAO scale over cosmic time, DESI can put stringent constraints on the expansion history of the Universe. This, in turn, provides new insights into the properties of dark energy, spatial curvature, and neutrino properties. Intriguingly, DESI's first BAO analysis in 2024 hinted at potential deviations of dark energy from a cosmological constant and a surprisingly low upper limit on the sum of the neutrino masses. In this talk, I will give an overview of the most recent results, how to interpret them, and discuss what to expect from DESI in the future.

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