

Toward an Independent Measurement of Dark Energy's Equation of State from a Novel Set of SNeIa: Cosmological Inference in LEMAITRE

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The LEMAITRE project (Latest Extensive Mapping of Acceleration with Independent Troves of Redshifted Explosions) seeks to deliver an independent measurement of the distance-redshift relation in the late universe through a previously unpublished set of Type Ia supernovae (SNeIa) from ZTF, SNLS years 4-5, and HSC. Within this framework, we are developing and testing a streamlined, likelihood-based cosmological inference model designed to simplify the inference process, enhance reproducibility, and provide more precise confidence intervals.

Traditional methods often depend on intricate simulations to adjust for methodological biases. The LEMAITRE approach, however, integrates all significant effects directly into the statistical model. The analysis is thus significantly accelerated and simplified, making results easier to replicate. The project includes a comprehensive plan for method characterization and validation through a series of data challenges, which progressively increase in complexity and realism.

We present the current development stage of our methodology and its successful performance in an initial data challenge. This proposal outlines the remaining work plan leading up to the unblinding of the LEMAITRE dataset.

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Classification de Session: Présentations