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Graduate Thesis Award Winner: Cosmology with type Ia Supernovae: challenges and results of the Dark Energy Survey

Wednesday, 15 June 2022 10:35 (15 minutes)

Type Ia Supernovae are one of the most powerful tools to study the expansion history of our Universe and they are the first cosmological probe that directly measured cosmic acceleration.

The recently concluded Dark Energy Survey SN program (DES-SN) has obtained the largest and deepest high-redshift cosmological SN Ia sample to date.
In my talk, I will give an overview of the current status of the cosmological analysis of the DES-SN sample. I will present the set of simulations generated to accurately and robustly model the DES-SN survey, and I'll show how these simulations can be used to assess different sources of systematic uncertainties, in particular "contamination" from non-Ia SN events.

The DES-SN analysis will provide the best SN measurement of the cosmic acceleration to date, and will inform the design of the next generation of SN experiments (e.g.,Vera Rubin Observatory) which are expected to observe millions of SNe Ia in the next decade.

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