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None

Dr. Mickaël Rigault
CNRS/IN2P3

Type Ia Supernova Cosmology and the issue of astrophysical biases

Type Ia Supernovae are powerful distance indicators that enable us to measure the recent expansion rate of the Universe and thereby derive the properties of dark energy. They are also key to directly measure the Hubble Constant H_0 , found to be incompatible with predictions based on the standard model of cosmology anchored by Cosmic Microwave Background data.

Yet, despite 20 years of success, we still largely ignore the underlying mechanism responsible for the astrophysical event a Type Ia Supernovae is. This is now limiting further progress on measuring cosmological parameters and questions the accuracy of our measurements that now entire the era of high precision.

In this presentation, I will introduce the derivation of cosmological parameters with Type Ia Supernovae (dark energy's w and H_0) and how the study of the correlation between Supernova's properties that of their hosts gives us critical information to improve their use as cosmological probes. I will finish by introducing the ongoing Zwicky Transient Facility survey that is new revolutionising the field and opening new area for SN Cosmology.

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