

ASTROPHYSICS SEMINAR

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Analysis of the 5-year data sample of the SuperNova Legacy Survey

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Abstract. The Supernova Legacy Survey (SNLS) is a program that aims at discovering and photometrically following hundreds of Type Ia supernovae (SNIa). Our goal is to measure the expansion history of the Universe in order to constrain the nature of dark energy, namely its equation of state w_{DE} . The survey completed its data taking during summer 2008 after 5 years of program.

This talk will present the status of the program and my contribution to the project, which consisted in the analysis of these 5 years of SNLS data (SNLS-5) and in the photometry of the 419 Type Ia supernovae discovered and spectroscopically identified. For each supernova, the light curves were produced in the MegaCam natural photometric system (g_M , r_M , i_M , z_M bands), calibrated and fitted with a spectrophotometric model in order to infer the supernovae distances and populate the Hubble diagram. Furthermore a new differential photometry technique, which does not make use of any pixel resampling, has also been implemented and tested. This method preserves the pixels statistical properties and produces this way a more accurate estimation of the statistical uncertainty of the flux measurements.

A sample of supernovae with unprecedented statistics and quality is now available for cosmological analysis. With the complement of an external nearby supernovae sample, a measurement within 5% of the dark energy equation of state is thus for the first time within reach.

Additional Information

The seminars are given in the ISDC "Pavillon" building
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