Proponente: Dott.ssa Ester Piedipalumbo (ester@na.infn.it)

Titolo: "High Redshift Cosmography"

Descrizione: This project consists in to constraining the parameters describing the kinematical state of the universe using a cosmographic approach, which is fundamental in that it requires only a minimal set of assumptions, namely to specify the metric, and it does not rely on the dynamical equations for gravity. A high-redshift analysis will be applied, which allows us to put constraints on the cosmographic expansion up to the fifth order. It is based on the Union2 Type Ia Supernovae (SNIa) data set, the Hubble diagram constructed from some Gamma Ray Bursts luminosity distance indicators, and gaussian priors on the distance from the Baryon Acoustic Oscillations (BAO), and the Hubble constant h (these priors have been included in order to help break the degeneracies among model parameters). To perform our statistical analysis and to explore the probability distributions of the cosmographic parameters the students will use the Markov Chain Monte Carlo Method (MCMC).