

Pippin - An end-to-end cosmology pipeline

From lightcurves to cosmological parameter inference - perform end-to-end SNIa cosmology analysis with this streamlined, publicly available, pipeline.

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Original code created by Sam Hinton

What can you do with Pippin?

Real or Simulated Data

Prepare / simulate lightcurves for analysis.

Lightcurve Fitting

Fit SALT2 parameters to data and simulations using SNANA.

Classification

Classify lightcurves with SuperNNova (Möller, 2019) / Scone (Qu et al, 2021).

BBC

Run BEAMS with Bias Corrections (BBC) to produce redshift binned Hubble Diagram (HD) corrected for bias and contamination.

Create Covariance Matrix

Create a systematic covariance matrix from HD shifts

Cosmology Fitting

Perform cosmological parameter inference with MCMC (COSMOMC) or fast minimisation (WFIT) (MCMC with COSMOSIS available soon).

Why use Pippin?

Efficient, powerful, and flexible. Use a single config file to control SNANA and other cosmological analysis tools.

Who uses Pippin?

For cosmological studies:

DES 5yr SNIa analysis

(Vincenzi et al, in prep)

LSST-DESC: SNIa using Photo-z

(Mitra et al, int. review)

LSST-DESC: DC2-SNIa

(Sanchez et al 2022)

Pantheon+ Analysis

(Brout et al, 2022)

For systematic studies:

DES: RedMaGiC Galaxies

(Chen et al, 2022)

A revised SALT2 surface

(Taylor et al, 2021)

Binning is Sinning

(Brout et al, 2021)

It's Dust - Solving the mystery of intrinsic scatter

(Brout & Scolnic, 2021)

DES: SN Core Collapse Systematics

(Vincenzi et al, 2021)

Github



Survey



JOSS

