analyzeSN Documentation

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Contents

Contents: A module for helper functions to read SNANA simulations

class `analyzeSN.snanaSims.`**`SnanaSims`**(*headfile*, *photfile*, *snids=None*, *n=None*)
    class to hold data from SNANA simulations and methods to manipulate the data

    `snList`
        list of *~astropy.Table.Table* with each Table containing a

        light curve of a SN.

    static `addbandstoSN`(*sn*, *lsstbands*, *replacement*)
        add a column called 'band' to the *~astropy.Table.Table* by applying the map of lsstbands to replacements
        to the content of a column called 'FLT'

        Parameters

            • **`sn`** (*~astropy.Table.Table* obtained by reading an SNANA light curve) –

            • **`lsstbands`** (*list of strings, mandatory*) – list of strings representing the filters in sn,
              which can be found by '`np.unique(sn['FLT'])`

            • **`replacements`** (*list of strings, mandatory*) – list of strings representing the filters as
              registered in SNCosmo in the same order as lsstbands

        Returns

        Return type *~astropy.Table.Table* with 'FLT' column removed and 'band' column added

    classmethod `fromSNANAfileroot`(*snanafileroot*, *location='./'*, *snids=None*, *n=None*)
        Class constructor from a root file and a location

        Parameters

            • **`snanafileroot`** (*string, mandatory*) – root file name for the SNANA which is the
              prefix to '_HEAD.FITS', or '_PHOT.FITS'

            • **`location`** (*string, optional defaults to current working directory './'*) – directory where
              the head and phot files are located

            • **`snids`** (*integer/string, optional defaults to None*) – if not None, only SN observations
              corresponding to SNID snid are loaded

            • **`n`** (*Integer, defaults to None*) – if not None, only the first n SN light curves are loaded

    static `snanadatafile`(*snanafileroot*, *filetype='head'*, *location='./'*)
        obtain the name of the head or phot file of an SNANA simulation and dataset

        Parameters

            • **`snanafileroot`** (*string, mandatory*) – root file name for the SNANA which is the
              prefix to '_HEAD.FITS', or '_PHOT.FITS'

            • **`filetype`** (*string, optional defaults to 'head'*) – 'head' or 'phot' depending on whether
              a summary file or a photometry file is being used.

            • **`location`** (*string, optional defaults to current working directory './'*) – directory in
              which the file is located

        Returns string

        Return type absolute path to the SNANA file

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