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Studying Type Ia Supernovae Progenitor Parameters via Light Curve Analysis SUDESHNA CHAKRABORTY, Florida State University — We analyze Light Curve data sets from Carnegie Supernova Project I (CSPI) and II to study intrinsic primary parameter variations and effects of secondary parameters as main sequence mass and central density of the progenitor of SNe Ia via monochromatic differential Light Curve analysis. A V band LC template is used to determine stretch in a restricted temporal range. Generic progenitor parameters are determined by solving an overdetermined system, and mapped into physical space using priors of physical parameter ranges. Starting with a small data set of CSPI SNe Ia, methods have been developed to handle large less homogeneous data sets for transients like in CSPII and future LSST to study SN/host correlations. Comparing CSPI and II, we find that overall trend in secondary parameter distributions are similar. At low redshift sample distribution main sequence mass of progenitors peak at 5 to 7 solar masses, so SNe Ia can be expected to be related with star formation and present at high redshift. Central density extends to values lower than possible for Hydrogen accretors, which indicates He/C accretion from He-stars and tidally disrupted WD companions. Our method can be used to find outliers apart from normal SNe Ia by just using LC, which is useful where spectra are unavailable.

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