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Cosmology and Stellar Physics with Lensed Supernovae

Monday, 25 January 2021 22:05 (25 minutes)

Strongly lensed supernovae (SNe) provide great opportunities for constraining cosmological parameters and SN progenitors. The time delays between the multiple images of a lensed SN allow a measurement of the Hubble constant (H0), which is complementary to lensed-quasar studies. An independent measurement of H0 is important for assessing the current H0 tension and the possible need for new physics. I will present the results of a new program on lensed SNe, including recent developments in the search for these rare events, and new techniques for analyzing such systems for cosmography. The time delays also facilitate early-phase observations of SNe, which are crucial for deciphering SN progenitors. Using various models of SN explosions, I will quantify the impact of microlensing on SN for both progenitor and cosmological studies. I will show the bright prospects of lensed SNe as an independent and competitive probe of cosmology and SN progenitors.

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