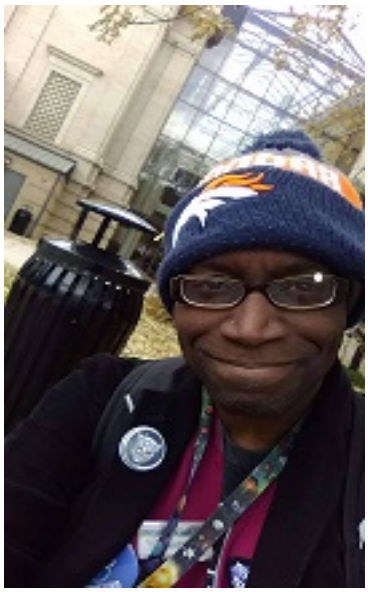
UNIVERSITY of DENVER
PHYSICS AND ASTRONOMY

First Year Graduate Student Presentation

Wednesday, June 2, 2021
4:00 PM via Zoom 845 1454 6523



Christopher Pickens

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Polarized Light Reveals Evolving Aspherical Structure in Supernovae ASASSN14-az

Spectropolarimetry of core-collapse supernovae shows evidence for significant departures from spherical symmetry in their ejecta. This raises fundamental questions regarding the explosion mechanism and how pre-detonation mass loss affects their evolution. I will present multi-epoch, optical spectra and polarimetry of supernovae ASASSN14-az from the database of the Supernovae Spectropolarimetry Project. Polarization diagnostics at a Helium I absorption feature in the spectra indicate the presence of rapidly evolving aspherical geometry within its expanding envelope. These time-dependent polarimetric "snapshots" from the database offer a unique window into the structural changes of ASASSN14-az. These observations are also an opportunity to revisit the nature of the sub-class of "stripped envelope" supernovae, of which ASASSN14-az is a representative member.

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