

Abstract Submitted
for the CUWIP21 Meeting of
The American Physical Society

Spectroscopic Analysis of Near-Chandrasekhar-Mass Type Ia Supernovae from the Double-Degenerate Channel¹ MCKENZIE FERRARI, SUDARSHAN NEOPANE, KHANAK BHARGAVA, NIRANJAN ROY, ROBERT FISHER, University of Massachusetts Dartmouth, SHIN'ICHIROU YOSHIDA, University of Tokyo, SILVIA TOONEN, University of Amsterdam — Type Ia supernovae (SNe Ia) are the result of the explosion of white dwarfs (WDs) and inform the rate of acceleration of the universe, provide clues into the origin of elements crucial for life on Earth, and ultimately power the interstellar turbulence responsible for the birth of new stars. The canonical single-degenerate channel, consisting of a WD rapidly accreting from a non-degenerate star, has previously been believed to explain the origin of near-Chandrasekhar SNe Ia. However, in this work we suggest that the merger of two white dwarfs through the double-degenerate channel is instead the origin for the majority of near-Chandrasekhar mass SNe Ia. I will present synthetic spectra from hydrodynamical models of these SNe Ia, which are compared against past observed events to identify the sub-type of SNe and serve as crucial verification tests of the simulations.

¹Funded by a NASA Mass Space Grant

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Date submitted: 04 Jan 2021

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