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The Role of UV Flux on the Spectra and Ionization Balance of Nebular Type Ia Supernovae ALEC FISHER, PETER HOEFLICH, Florida State University — Type Ia Supernovae (SNe Ia) are important tools as cosmological distance scales, and are laboratories for the study of physical processes like radiation transport and hydrodynamical instabilities. Thought to be the thermodynamic explosion of a degenerate white dwarf star, their use as standaradizable candles have led to important discoveries like the accelerating expansion of the universe. The spectrum of SNe Ia give information on characteristics like the chemical make-up of the expanding layers, and while early time spectra have been extensively modeled for the past 30+ years, it is only within the last decade that later nebular phases have been taken under serious consideration as modern telescopes are able to probe this regime. A particular characteristic that is relatively uncertain is the ionization structure of the elements throughout the envelope, which is important in calculating relative line strengths of the spectra. With a new, fast code focused on the transitional and nebular phases of SNe IA, we calculate the spectra and ionization stages for various ignition scenarios across multiple times, and we show how the ultraviolet flux plays an important role on the line strengths via incomplete Rosseland cycling and the ionization balance through stimulated recombination.

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