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## Systematic investigation of very early-phase spectra of type Ia supernovae

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It is widely accepted that Type Ia supernovae (SNe Ia) are thermonuclear explosions of a CO white dwarf in a binary system, but it is still unknown how the explosive nucleosynthesis proceeds during the explosion. Thanks to the recent technological development of the transient observations, many supernovae are now detected shortly after the explosion, followed by quick spectroscopic observations. In this study, we focus on very early-phase spectra of SNe Ia and try to constrain the explosion models of SNe Ia. By using one-dimensional Monte Carlo radiation transfer code, TARDIS, we estimate the density and the abundance structure of the outermost ejecta of SNe Ia. Applying the method for a sample of SNe Ia, we systematically investigate whether and how the outermost ejecta structure is different for different subclasses of SNe Ia. In this presentation, we will show the initial results of our investigations, and discuss possible links between the properties of the outermost layers and the explosion models.

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