

# THE CHEMICAL COMPOSITION OF THE EJECTA OF THE RARE TYPE IIB SUPERNOVA 2013DF

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SN 2013df, appeared in the nearby galaxy NGC 4414 at a distance of  $\sim 17$  Mpc, is a rare type IIb supernova. Members of this subclass are intermediate between the hydrogen-rich type II-P SNe and the hydrogen-poor, stripped envelope Type Ib/c explosions. Their progenitors are thought to be massive ( $\sim 20$  M $\odot$ ) stars, which may have interacting binary companions. Up to now, detailed analysis have been published on only a few type IIb SNe, thus, it is important to study well-observed individual objects as thoroughly as possible. Our team collected a sample of high-quality data on SN 2013df. Here we present the results of our spectroscopic analysis based on 6 optical spectra obtained between June 13 and July 8, 2013 with the 9.2m Hobby-Eberly Telescope (HET) Marcario Low Resolution Spectrograph (LRS) at McDonald Observatory, Texas. We applied the SYNAPPS spectral synthesis code to get information on the chemical composition and physical properties of the ejecta. The spectral evolution, based on the comparison with other type IIb SNe 1993J and 2011dh, is also presented and discussed.