Shedding Light on Carbon-Oxygen White Dwarf Mergers and Post-Merger Evolution

by

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Abstract

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"Do or do not; there is no try."

–Yoda

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I'd like to thank the academy for choosing me...

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4.1 Implications for SN Ia Observations

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If sub-$M_{\rm Ch}$ CO WD merger remnants indeed trigger thermonuclear detonations following post-merger viscous evolution, will these explosions resemble SNe Ia? As noted in the introduction, SNe Ia observations and radiative transfer models for explosions are now sophisticated enough to distinguish fine details between different progenitors. While a 3D hydrodynamic explosion model has not been run for a spun-down merger remnant, we can look at works investigating related progenitors to obtain first-order estimates.

Fryer et al. (2010) and Raskin et al. (2014) do simulations

Bibliography

Fryer, C. L., Ruiter, A. J., Belczynski, K., et al. 2010, ApJ, 725, 296

Raskin, C., Kasen, D., Moll, R., Schwab, J., & Woosley, S. 2014, ApJ, 788, 75