



The Beginnings and Ends of Double White Dwarfs

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Explore the Double Degenerate scenario using Phantom

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The double-degenerate scenario is, nowadays, the preferred model to explain the majority of Type Ia supernovae. In order to explore it, a vast number of studies have been performed during the last decades using a large variety of methods. From the theoretical point of view, numerical simulations using the Smoothed Particle Hydrodynamics (SPH) method have played an essential role understanding the dynamical behaviour of merging white dwarfs. Various different groups have performed SPH simulations of the double-degenerate scenario, using in the vast majority of the cases their own fine-tuned for the purpose SPH codes. Unfortunately, the majority of those codes have remained private, falling some of them into oblivion or obsolescence. As a result, the community lacks a reliable, up to date, open-source, designed-for-the-purpose SPH code that can perform simulations of white dwarf binary mergers. In this work, we present an adaptation of the open-source SPH code phantom (Price et al. 2017) that allows the simulation of white dwarf binary mergers using a modern and robust SPH prescription.

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