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The Propeller Regime of Binary White Dwarf Mergers[1] ASIA HAQUE, University of Massachusetts Dartmouth, BINAYYAK ROY, St. Stephen's College, Delhi, ROBERT FISHER, University of Massachusetts Dartmouth — Merging white dwarf binaries are believed to be a possible channel for the formation of Type Ia supernovae (SNe Ia). However, if the merger does not promptly result in a SN Ia, observations and theory point towards the production of a high field magnetic white dwarf (HFMWD) during the merger. When the centrifugal force at the magnetospheric radius dominates the gravitational force, the magnetosphere drives an outflow in the propeller regime. Our work involves the multidimensional magnetohydrodynamical simulation of the propeller regime in a binary white dwarf merger. We have used Lagrangian passive tracer particles in the astrophysical code framework FLASH 4 to demarcate the boundary of the white dwarf merger and the accretion disk. The analysis of the Lagrangian histories of these particles enables us to determine the mass accretion and mass outflow rates at a level not possible with purely Eulerian data. I conclude with implications for possible observable features of the propeller-driven merger outflows.

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