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Colliding Convectons EDGAR KNOBLOCH, University of California, Berkeley, ISABEL MERCADER, ORIOL BATISTE, ARANTXA ALONSO, UPC, Barcelona, Spain — Convectons are strongly nonlinear spatially localized states found in thermally driven fluid flows. In systems with midplane reflection symmetry stationary convectons of odd and even parity lie on a pair of intertwined branches that form the backbone of the snakes-and-ladders structure of a "pinning" region in parameter space (Mercader et al., J. Fluid Mech. 667 (2011) 586). When the midplane reflection symmetry is broken, the odd parity convectons start to drift with a speed that depends on the magnitude of the symmetry-breaking and the convecton length. Direct numerical simulations are used to study head-on and follow-on collisions between such drifting convectons in binary fluid convection, and the results compared and contrasted with corresponding dynamics in a Swift-Hohenberg model studied by Houghton and Knobloch (PRE 84 (2011) 016204). In contrast to completely integrable systems the collisions are strongly inelastic (Mercader et al., J. Fluid Mech. 722 (2013) 240).

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