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The Progenitors of Short Gamma-Ray Bursts

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Recent years have witnessed dramatic progress in our understanding of short gamma-ray burst (SGRB) sources. There is now general agreement that SGRBs – or at least a substantial subset of them – are capable of producing directed outflows of relativistic matter with a kinetic luminosity exceeding by many millions that of active galactic nuclei. Given the twin requirements of energy and compactness, it is widely believed that SGRB activity is ultimately ascribable to a modest fraction of a solar mass of gas accreting onto a stellar mass black hole or to a precursor stage whose inevitable end point is a stellar mass black hole. Astrophysical scenarios involving the violent birth of a rapidly rotating neutron star, or an accreting black hole in a merging compact binary driven by gravitational wave emission are reviewed, along with other possible alternatives.