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Neutrino Transport: The State of the Art

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Because neutrinos dominate the energetics of stellar collapse, a responsible account of the core-collapse supernova explosion mechanism must include detailed neutrino transport. In its full glory neutrino transport is a time-dependent six-dimensional problem, as it requires the tracking of neutrino energy and angle distributions at every point in space. The enormity of the resulting computational demands has resulted in a variety of approximations and provoked a long history of uncertainty in the explosion mechanism. The computational resources necessary to solve the daunting fulness of this problem are still just over the horizon, but efforts to meet it in its full measure are already underway.