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(virtual) Low-level tricks and high-level vision for performant neutrino transport

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As the numerical relativity community focuses on detailed microphysics in neutron star mergers, and as accelerator hardware becomes ubiquitous, GPU-resident simulations and neutrino transport are becoming routine. I discuss my experience with both performance portability and Monte Carlo neutrino transport for post-neutron star merger disk and kilonova modeling, with an emphasis on gotchas and lessons learned. My goal is to provide useful information to both new members of the ET community and the core development team as they move towards implementing transport in community codes. I also speak to exciting developments in the field, such as in-situ treatment of neutrino oscillations and tensor-network based radiation transport.

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