The iS3D particlization module for heavy-ion collision simulations MICHAEL MCNELIS, DEREK EVERETT, MATTHEW GOLDEN, ULRICH HEINZ, Ohio State University, JETSCAPE-SIMS COLLABORATION — The iS3D particlization module simulates the emission of hadrons from heavy-ion collisions via Monte-Carlo sampling. The code package includes multiple choices for the non-equilibrium correction to the hadronic distribution function in the Cooper-Frye formula: the 14-moment approximation, Chapman-Enskog expansion, and two types of modified equilibrium distributions. This makes it possible to explore, using Bayesian analysis, whether heavy-ion experimental data prefers one of these models for δf_n, the main source of theoretical uncertainty in the particlization stage. We validate our particle sampler with a high degree of precision by generating several million hadron emission events from a longitudinally boost-invariant hypersurface and comparing the event-averaged particle spectra and spacetime distributions to the Cooper-Frye formula.

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