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Probing early-time longitudinal dynamics with the Λs polarization in relativsitic heavy-ion collisions[1] SANGWOOK RYU, VAHIDIN JUPIC, CHUN SHEN, Wayne State University — We systematically study the global Λ polarization sensitivity to collision systems initial longitudinal flow velocity in hydrodynamic simulations. By explicitly imposing energy-momentum conservation when mapping the initial collision geometry to macroscopic hydrodynamic fields, we study the evolution of systems orbital angular momentum and fluid vorticity. The spin polarization of Λ is compared with the STAR measurements in the Au+Au collisions from 7.7 GeV to 200 GeV. We further extend our model to make predictions for Pb+Pb collisions at 5020 GeV and Au+Au collisions at 3 GeV in the STAR fix target experiments at RHIC.

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