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Hydrodynamics with Spin

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Measurements made recently by the STAR collaboration show that the Lambda hyperons produced in relativistic heavy-ion collisions are subject to global spin polarization with respect to an axis coincident with the axis of rotation of the produced matter. Recently formulated formalism of relativistic hydrodynamics with spin, which is a generalization of the standard hydrodynamics, is a natural tool for describing the evolution of such systems. This approach is based on the conservation laws and the form of the energy-momentum tensor and spin tensor postulated by de Groot, van Leeuwen, and van Weert (GLW). Using Bjorken symmetry we show how this formalism may be used to determine observables describing the polarization of particles measured in the experiment.

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