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Hydrodynamics of particles with spin 1/2

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The formulation of relativistic hydrodynamics of particles with spin 1/2 will be shortly reviewed. The proposed framework is based on the Wigner function treated in a semi-classical approximation or, alternatively, on a classical treatment of spin 1/2. The consistency of the two approaches will be demonstrated and first numerical solutions of the obtained scheme will be shown. Several theoretical issues regarding the proper choice of the energy-momentum and spin tensors used to construct the hydro framework with spin will be also discussed.

The talk will be based mainly on extracts from arXiv:1811.04409 (invited article for Progress in Particle and Nuclear Physics) and arXiv:1901.09655.

Primary author: FLORKOWSKI, Wojciech (Institute of nuclear Physics, Krakow)

Presenter: FLORKOWSKI, Wojciech (Institute of nuclear Physics, Krakow)

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