Statistical modelling of solar plasma flow by considereing finite instrumental resolution scale

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A steady solar wind is described by the statistical approach suggested in [1] for stationary nonhomogenous plasma flow which macroscopic parameters are measured with finite resolution scale. The approach is based on the Liouville equation and the assumption that particles have indistinguishable coordinates in a volume of an instrumental resolution scale. The latter results in definition of plasma parameters on the base of reduced multiparticle probability functions what produces fluctuation distributions and mean values of these parameters. The disscussed approach is tested by the well known classical problems. The multiparticle statistical model for two-component (electron-proton) plasma reduces to two-particle kinetic model [2], which results (radial dependences of solar wind density and speed) are consistent with observational data [3].

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