

Abstract Submitted
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Fluid moments of the nonlinear Landau collision operator¹ EERO HIRVIJOKI, MANASVI LINGAM, DAVID PFEFFERLÉ, LUCA COMISSO, Princeton Plasma Physics Laboratory, JEFF CANDY, General Atomics, AMITAVA BHATTACHARJEE, Princeton Plasma Physics Laboratory — One important problem in plasma physics is the lack of an accurate and complete description of Coulomb collisions in associated fluid models. To shed light on the problem, this work introduces an integral identity involving the multivariate Hermite tensor polynomials and presents a method for computing exact expressions for the fluid moments of the nonlinear Landau collision operator. The proposed methodology provides a systematic and rigorous means of extending the validity of fluid models that have an underlying inverse-square force particle dynamics to arbitrary collisionality and flow. (For details, see arXiv:1605.07589)

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