A high-order Legendre-WENO kernel density function method for modeling disperse flows[1] TIMOTHY SMITH, CARLOS PANTANO, University of Illinois at Urbana-Champaign — We present a high-order kernel density function (KDF) method for disperse flow. The numerical method used to solve the system of hyperbolic equations utilizes a Roe-like update for equations in non-conservation form. We will present the extension of the low-order method to high order using the Legendre-WENO method and demonstrate the improved capability of the method to predict statistics of disperse flows in an accurate, consistent and efficient manner. By construction, the KDF method already enforced many realizability conditions but others remain. The proposed method also considers these constraints and their performance will be discussed.

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