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Exploring the use of Quadrature Moment Inversion Algorithms in Implicit PIC Simulation¹ DAVID LARSON, Lawrence Livermore Natl Lab, IAN BEAN, Virginia Tech — We report on the use of quadrature moment inversion algorithms [1-3] in implicit particle-in-cell simulation. In particular, we explore their use as a natural means of closing the moment system in the fluid-kinetic PIC method [4]. Results are presented for test problems in 1D1V and extensions to fully implicit simulation are discussed. [1] R.O. Fox, J. Comp. Phys. 227 (2008), [2] O. Desjardins, et. al., J. Comp. Phys. 227 (2008), [3] Yuan, C., and R. O. Fox, J. Comp. Phys. 230 (2011), [4] Markidis, S., et al., J. Comp. Phys. 271 (2014).

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