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The influence of eccentricity fluctuations on the extraction of the QGP shear viscosity from elliptic flow data¹ J. SCOTT MORELAND, ULRICH HEINZ, HUICHAO SONG, Ohio State University — In a recent paper [Phys. Rev. C 80 (2009) 061901] we showed that systematic studies of the impact parameter dependence of the eccentricity-scaled elliptic flow v_2/ϵ can distinguish between different models for the calculation of the initial source eccentricity. These calculations were done with viscous relativistic hydrodynamics in 2+1 space-time dimensions, assuming longitudinal boost-invariance and using the optical versions of the Glauber and fKLN (Color Glass Condensate) models to describe the initial energy density profiles. Here we report on the results on a follow-up study that includes the effects of event-by-event fluctuations in the shape and orientation of the reaction zone that defines the initial fireball density. We explore the effects of eccentricity fluctuations on the collision centrality dependence of the eccentricity-scaled elliptic flow and compare the results with experimentally observed trends in Au+Au collisions at the Relativistic Heavy Ion Collider.

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