Fluctuations and Self-Correlations in Relativistic Heavy-Ion Collisions.[1] ARITRA DE, University of Minnesota, CHRISTOPHER PLUMBERG, Lund University, JOSEPH KAPUSTA, University of Minnesota — Hydrodynamic modelling explains the behavior of quark gluon plasma in heavy ion collisions very well. Fluctuations in such hydrodynamic equations lets us study the various thermal and transport properties of the medium. Since critical points are characterized by large fluctuations, the hope is that this line of investigation will help us identify the presence of a critical point in the QCD phase diagram. In this talk I will describe the study of fluctuations in electric charge in heavy ion collisions using a causal noise called Catteneo noise. We will discuss how a lattice of noise fluctuations is required to fully calculate the two-point correlators of charge. A numerical procedure will be introduced to solve the stochastic differential equations that arise from the charge conservation equation on the lattice event-by-event. I will also identify the 'self-correlation' term in the case of Catteneo noise and provide a physical interpretation. In conclusion, I will also compare the hydrokinetic approach with our framework.

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