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Numerical Simulation of Chern-Simons Inflation DAVID GARRISON, University of Houston Clear Lake, ANNIE PRESTON, STEPHON ALEXANDER, Haverford College — In this talk we show numerical results of the Chern-Simons Inflation Model proposed by Alexander, Marciano and Spergel. In this model, the Chern-Simons interaction of vector fields plays a central role in generating the inflationary epoch. According to the model, Inflation begins with a plasma made of interacting gauge fields and fermions. The Chern-Simons interaction then drives energy from the initial random spectrum into a narrow-band of frequencies at superhorizon scales. The fermion current also amplifies the gauge field at superhorizon scales. These gauge fields when combined with the Friedman equations can be broken into a system of hyperbolic equations and modeled numerically. We show that the amplification of horizon sized gauge fields produces the conditions to cause more than 60 e-folds of inflation.

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