Relaxation of number density waves in freely cooling granular systems SHANKAR SUBRAMANIAM, MADHUSUDAN G. PAI, Department of Mechanical Engineering, Iowa State University, Ames, IA-50010 — In this study, we explore the effect of strong inhomogeneities in the initial number density on the evolution of a system of inelastically colliding hard spheres. The characteristic length scale of the inhomogeneity in number density (viz. n/(grad n)) is varied compared to a characteristic length scale associated with the initially prescribed pair correlation function of hard sphere positions. Effect of initial translational kinetic energy, volume fraction and restitution coefficient on the system evolution is explored. Implications of this study on scale separation underlying the revised Enskog theory are summarized.

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