

Cooling in Granular Gases

Sanjay Puri

*School of Physical Sciences, Jawaharlal Nehru University,
New Delhi-110067, India*

We discuss the dynamical evolution of granular gases. This system loses energy (cools) continuously because of the inelastic collisions between particles. We focus on freely-evolving granular gases. The gas initially cools in a homogeneous cooling state (HCS), but a clustering instability drives it into an inhomogeneous cooling state (ICS). We present results for the HCS and ICS of granular gases.

We also discuss similar phenomena in granular gases cooling by frictional interactions. In this context, our long-term goal is a continuum theory of dense granular matter.