

## Jeans instability in a dusty plasma with neutral grains

# Shuichi Matsukiyo[1], Tohru Hada[2], Bipuljyoti Saikia[3]

[1] Earth System Sci., Kyushu Univ., [2] ESST, Kyushu Univ, [3] ESST, Kyushu Univ.

[http://www.esst.kyushu-u.ac.jp/CDS/index\\_j.html](http://www.esst.kyushu-u.ac.jp/CDS/index_j.html)

Jeans instability in a dusty plasma is studied by using a 2-dimensional hybrid simulation code. As reported earlier, the characteristics of the instability are mainly controlled by the ratio of Jeans and plasma frequencies and the plasma Debye length. On the other hand, in realistic astrophysical situations, charge neutral dust grains can not be neglected. In this meeting, we perform hybrid simulations of a system which consists of neutral and charged dust grains, and discuss the effects of collision between the neutral and charged dust grains.

Jeans instability in a dusty plasma is studied by using a 2-dimensional hybrid simulation code. As reported earlier, the characteristics of the instability are mainly controlled by the ratio of Jeans and plasma frequencies and the plasma Debye length. On the other hand, in realistic astrophysical situations, charge neutral dust grains can not be neglected. In this meeting, we perform hybrid simulations of a system which consists of neutral and charged dust grains, and discuss the effects of collision between the neutral and charged dust grains.