Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Cycloid motions of aggregates in a dust plasma[1] YAFENG HE, YONGLIANG ZHANG, FAN FENG, LIFANG DONG, None, HEBEI KEY LABORATORY OF OPTIC-ELECTRONIC INFORMATION MATERIALS TEAM — Hypocycloid and epicycloid motions of aggregates consisted of one large and one small grains are experimentally observed in a rf dust plasma. The cycloid motions are regarded as combination of a primary circle and a secondary circle. Measurements with high spatiotemporal resolution show that the secondary circle is determined by the initial angle velocity of the dropped aggregate. The primary circle originates from the asymmetry of the aggregate. The small grain in the aggregate always leads the large one as they travelling, which results from the di?erence of the resonance frequency of the two grains. Comparison experiments with regular microspheres show that the cycloid motions are distinctive features of aggregates immersed in a plasma.

[1]This work is supported by the National Natural Science Foundation of China (Grant No. 11205044, 11405042)

Yafeng He
None

Date submitted: 08 Aug 2015 Electronic form version 1.4