

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Dynamics of Multi-Chain Dust Clouds in Microgravity.**<sup>1</sup> TRU-ELL HYDE, LORIN MATTHEWS, CASPER - Baylor University, PETER HARTMANN, Wigner Research Centre for Physics CASPER - Baylor University, , MARLENE ROSENBERG, UCSD, OLEG PETRO, JIHT RAS, VLADIMIR NOSENKO, DLR CASPER - Baylor University, EVA KOSTADINOVA, JORGE CARMONA-REYES, CASPER - Baylor University — Dust clouds in microgravity have proven a versatile analog for the study of self-ordered (soft matter) systems, particularly those where structuring is determined by the redistribution of flow kinetic energy and local and global confinement. In this talk, data collected using the PK-4 device on the International Space Station (ISS) as part of Campaigns #7 and #9 will be discussed. This data will be compared to PK-4 BU data collected under gravity to allow examination of dust systems employing DC polarity switching and a RF field with a movable electrode. The redistribution of flow kinetic energy at the onset of polarity switching and the resulting formation and self-excited dynamics of multi-chain dust clouds during the application of polarity switching will also be examined..

<sup>1</sup>This material is based upon work supported by the National Science Foundation and NASA under NSF Grants No. 1740203 and 1707215, NASA contract 1571701 and JPL subcontract 1647194.

Truell Hyde  
CASPER - Baylor University

Date submitted: 25 Jun 2020

Electronic form version 1.4