

Abstract Submitted
for the DPP20 Meeting of
The American Physical Society

Overview of CASPER's on-ground PK-4 laboratory system¹

JORGE CARMONA REYES, MICHAEL COOK, KENNETH ULIBARRI, Baylor University, VOLODYMYR NOSENKO, German Aerospace Center and CASPER/Baylor University, PETER HARTMANN, Wigner Research Centre and CASPER/Baylor University, LORIN MATTHEWS, TRUELL HYDE, Baylor University — The PlasmaKristal-4 (PK-4) laboratory on the International Space Station (ISS) continues to produce a wealth of dusty plasma data across research areas such as dusty plasma waves, chains, vorticity, phase cloud behavior, striations and ionization waves. The majority of analogs that exist for this device are ground versions of the flight model used in PK-4 ISS experiments, which by default restricts their operation. The experimental group at CASPER has assembled a PK-4 analog (the PK-4 BU) that has now been producing data for two years. The PK-4 BU was specifically designed to allow accessibility to all system components, including electronic circuits, cameras and diagnostic instrumentation. This provides great flexibility that expedites the setup required for a given experiment and allows researchers more control over system operating parameters. This combination of flexibility and accessibility have allowed CASPER researchers and collaborators to explore experimental data regimes bringing a new understanding of dusty plasma characteristics in microgravity.

¹This material is based upon work supported by the National Science Foundation and NASA under Grants No. 1740203 and 1571701.

Jorge Carmona Reyes
Baylor University

Date submitted: 29 Jun 2020

Electronic form version 1.4