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Structure within the PK-4 Environment[1] TRUELL HYDE, LORIN MATTHEWS, Baylor University - CASPER, PETER HARTMANN, Wigner Research Centre for Physics, Budapest, Hungary, MARLENE ROSENBERG, University of California, San Diego, California, OLEG PETROV, Institute for High Temperatures, Russian Academy of Sciences, VLADIMIR NOSENKO, DLR Institute of Material Physics in Space, Wessling, Germany — Complex plasmas have long proven a versatile analog for the study of soft matter systems. On Earth, interparticle interactions can result in particle alignment as well as the formation of various structural states. Unfortunately, the forces behind these interactions are often partially masked by gravity in terrestrial experiments, obscuring the underlying physics. One way of avoiding this issue is through use of the Plasma Kristall-4 (PK-4) device currently in operation on the International Space Station (ISS) [1]. This talk will discuss structural formation observed within the PK-4 on the International Space Station and compare it to that observed using the PK-4 analogue at Baylor University. Results are interpreted using data from numerical simulations of the plasma discharge, dust charging, and plasma-dust interactions. [1] M. Y. Pustylnik, et. al. *Review of Scientific Instruments* 87 (2016) 093505.

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