

Abstract Submitted
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Coulomb Crystals in Cylindrical Dusty Plasmas under Gravity/Microgravity¹ KAZUO TAKAHASHI, Department of Electronics, Kyoto Institute of Technology, HIROO TOTSUJI, SATOSHI ADACHI, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency — Coulomb crystals of dusty plasmas have been studied under microgravity with utilities boarding on the International Space Station in a joint Russian/German research project. Dynamics of the Coulomb crystals in cylindrical plasmas is investigated with the apparatus of PK-4 being launched till the end of 2014. A science team in Japan studied the cylindrical dusty plasmas to contribute to the project with the PK-4J modified original for microgravity experiments of parabolic flights in Japan. In the experiments, the dust particles distributed at the off-centered position close to the bottom in balancing of gravity. Under microgravity, they changed the distribution and formed a Coulomb crystal around the center axis in the plasmas. Several particles arranged in a line parallel to the axis, and the lines piled up to a bundle.² Spatial distribution of the dust particles affects on plasma parameters of ion density and electron temperature. Structures of the Coulomb crystals connected to the parameters are discussed.

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²K. Takahashi, M. Tonouchi, S. Adachi and H. Totsuji, *Int. J. Microgravity Sci. Appl.* **31**, 62 (2014) 62.

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