

Abstract Submitted
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Void Closure of Dust Cloud by Modulated-13.56 MHz RF in PK-3 plus Complex Plasmas on the International Space Station KAZUO TAKAHASHI, Kyoto Institute of Technology, HUBERTUS THOMAS, RALF HEIDEMANN, ROBERT SUETTERLIN, LENAIC COUEDEL, MANIS CHAUDHURI, GREGOR MORFILL, Max-Planck-Institute for Extraterrestrial Physics, SATOSHI ADACHI, Japan Aerospace Exploration Agency — Microgravity gives the complex (dusty) plasmas where dust particles are embedded in completely charge neutral region of bulk plasma. The dust cloud of an uncompressed strongly coupled Coulomb system shows atomic model with several physical phenomena, e.g., crystallization, phase transition, and so on, which are currently demonstrated on the International Space Station. The dust particle free region (so called void) often disturbs particle distribution to form, e.g., crystal and dynamics to be observed in a physical phenomenon such as critical point. The PK-3 plus can control the particle distribution and make void close with additional bias-voltage modulating rf basis of 13.56 MHz. The electron density profile connected with potential distribution was clearly affected on by the modulated-13.56 MHz. The steep peak of electron density profile got gently down and changed in shape to be flat with modulating the basis, resulting in void closure of dust cloud.

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