3-D STRUCTURE OF THE MICROPARTICLE SUSPENSIONS IN A POLARITY–SWITCHED DISCHARGE PLASMA AND ITS LONG-TIME EVOLUTION

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Microparticle suspensions of 3.38 mcm plastic grains in a polarity-switched discharge plasma in argon at 28 and 60 Pa was investigated at the Plasmakristall-4 facility [1] on board the International Space Station under microgravity conditions. 3−D structure was analyzed by scanning the suspension.

It was found that the pair correlation functions indicate string-like order of the suspensions. An amount of long strings in the structures increases with time at the timescale of minutes [2]. This changes can not be explained by a gas contamination, because of gas refreshing with the time scale of tens of seconds. Possible cause of the structure evolution is spreading of the grain cloud, which leads to decreasing of the cloud diameter, or plasma etching of the plastic grains and its separation on sizes [3].

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