

Abstract Submitted
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Dust growth in PK-4 L. WOERNER, GREMI, Orleans, France / MPE, Garching, Germany, G. WATTIEAUX, E. KOVACEVIC, J. BERNDT, M. MIKIKIAN, GREMI, Orleans, France, S. ALBRECHT, M.H. THOMA, G.E. MORFILL, MPE, Garching, Germany, L. BOUFENDI, GREMI, Orleans, France — Dusty plasmas are a unique possibility to study the formation of nanoparticles from the gas phase in a closed and controlled laboratory setup. Particle growth is interesting regarding fundamental physics but in addition biomedical and industrial applications are under investigation. The objective of this work covers the study of dust formation in a dc discharge. The dc discharge is run inside an u-shaped glass cylinder. It is operated by two electrodes to which voltages up to 2 kV can be applied. In order to capture particles the polarity of the voltage can be switched. An rf coil is wrapped around the tube which is operated at 13,56 MHz and a peak-to-peak voltage of 200 V. The chamber is operated with Argon and mixtures of Argon with Acetylene at pressures around 100 Pa. Hence the growth is observed from etching particles laying on the surface of the glass tube, injected particles captured in the plasma, and in the gas phase by chemical reactions from Acetylene. The major prospective is to compare the growth mechanisms with those observed in experiments using rf discharges.

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