

Abstract Submitted  
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**Generation of two-dimensional binary mixtures in complex plasmas**<sup>1</sup> FRANK WIEBEN, DIETMAR BLOCK, Physics Department of Kiel University — Complex plasmas are an excellent model system for strong coupling phenomena. Under certain conditions the dust particles immersed into the plasma form crystals which can be analyzed in terms of structure and dynamics. Previous experiments focussed mostly on monodisperse particle systems whereas dusty plasmas in nature and technology are polydisperse. Thus, a first and important step towards experiments in polydisperse systems are binary mixtures. Recent experiments on binary mixtures under microgravity conditions observed a phase separation of particle species with different radii even for small size disparities. This contradicts several numerical studies of 2D binary mixtures. Therefore, dedicated experiments are required to gain more insight into the physics of polydisperse systems. In this contribution first ground based experiments on two-dimensional binary mixtures are presented. Particular attention is paid to the requirements for the generation of such systems which involve the consideration of the temporal evolution of the particle properties. Furthermore, the structure of these two-component crystals is analyzed and compared to simulations.

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