

P1.3018 First experiments on dusty plasmas in the D-Mag magnet

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See the full abstract here:

<http://ocs.ciemat.es/EPS2019ABS/pdf/P1.3018.pdf>

In the past years the study of dusty plasmas under strong magnetic fields has gained increased interest. Dusty plasmas consist of nanometer to micrometer sized particles that acquire high negative charges due to the inflow of plasma electrons and ions. To reveal magnetization effects of the dust species high magnetic field strengths are required. In Greifswald, recently, the DMag magnet has been installed that allows to generate homogeneous magnetic fields up to 6 T.

Experiments at these field strengths have been performed using micrometer-sized dust particles immersed in an argon rf discharge plasma. Despite the strong field, magnetization of the dust species is not expected due to its large mass. However, electrons and ions will be magnetized and the influence of these magnetized plasma species on the dust will be investigated.

Our first results of dust systems under strong magnetic fields will be presented. This includes investigations of the dynamics of finite dust clusters as well as the dynamics of dust-density waves.

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