

Abstract Submitted
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Dust formation and dynamic in magnetized and non-magnetized microwave discharge. KARIM OUARAS, Laboratoire de Physique des Gaz et des Plasmas, CNRS (UMR8578), Universit Paris-Sud, Bt. 210, 91405 Orsay Cedex, France, GUILLAUME LOMBARDI, KHALED HASSOUNI, LSPM-CNRS Universit Paris 13, Sorbonne Paris Cit, F-93490 Villetaneuse, France — Dusty plasmas studies are conducted for several decades to answer to various issues from micro-electronic, nanotechnology, astrophysics and thermonuclear fusion devices. These studies are usually conducted in RF discharges at low pressure in which the major physics concerning dust formation mechanisms and dynamic is now well known. In our case, we focus on dust formation and dynamic in (i) microwave plasma under typical pressure conditions of RF discharges (50 Pa) and (ii) in magnetized (ECR: Electron Cyclotron Resonance) microwave plasma under very low pressure condition (0.1 to 1 Pa). The aim of this study is not only for fundamental purpose but also for respond to some issues concerning dust in fusion devices. Thus, we investigate the dust formation mechanisms and dynamic using laser extinction method and laser light scattering imaging coupling with SEM imaging in hydrocarbon plasma and with PVD system with using tungsten target (according to fusion device). We observed that dust formation occurs even if the very low pressure conditions are generally not suitable for nucleation growth in gas phase (the influence of the magnetic field will be discussed). We will also discuss about the particular dust dynamic behavior in microwave discharge in comparison with RF discharge.

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