

Abstract Submitted
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PIC simulation of capacitive plasma with non-homogeneous boundary conditions T.A. ABU SHAMALEH, M.M. TURNER, Dublin City University, Ireland — In earlier work, we have studied the effect of boundary non-homogeneity in a capacitive system using a lumped element circuit model. That study concentrated on what is known as the triple junction boundary configuration in the vicinity of capacitive plasma sheath. In this case, metal structures behind a dielectric wall produce disturbances in an adjacent plasma, which are suspected to cause damage to the plasma reactor wall. The investigation showed that the implementation of sheath dynamics - as opposed to a static sheath - have significant effects on the surface voltage distribution along the dielectric surface. Furthermore, quantitative differences have been observed depending on what sheath model is being implemented within the model. In the current investigation, we will be tackling the same system using the particle in cell method. The aim is to be able to investigate the detailed behaviour of a capacitive plasma in the presence of a potential disturbance at the boundary. By comparing the results of our previous and current study, we can judge which sheath theory is more representative of the plasma sheath's behaviour under such conditions, and to what extent the deviation from the expected behaviour occurs.

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