

Abstract Submitted  
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**Electronic density fluctuation associated to coherent plasmon excitations**<sup>1</sup> JUANA GERVASONI, CNEA-CONICET, SILVINA SEGUI, CONICET, NESTOR ARISTA, CNEA — In this work we analyze, in the frame of the coherent states, the fluctuation of the electronic collective modes associated with the wake potential generated by an external particle of charge  $Ze$ . This perturbation is described as coherent states of plasmons spatially localized in an average distance of the order of the velocity of the projectile divided by the plasmon frequency of the material. One of the most important features is that in all the cases, for different trajectories of the external particle, and for different structures of the material, the fluctuations are not negligible. In particular, we observe that due to the importance of the surface in nanostructured materials, the fluctuation of density is very sensitive to their geometry and composition, fact that must have taken into account for the nanodevices designs.

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