

THE CHEMICAL POTENTIAL AND THE WORK FUNCTION OF A METAL FILM ON A DIELECTRIC SUBSTRATE

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The chemical potential and the work function of an aluminium metal film which is in the vacuum (1) and on a dielectric substrate (2) are obtained using the model of non-interacting electrons confined by an asymmetric rectangular potential well [1,2]. For the first time, these two characteristics are calculated with correct taking into account the electroneutrality condition [2]. As a result, in contrast to Ref. [1], the values of the chemical potential and the work function tend to their bulk values upon increasing the film thickness [2,3]. The presence of a dielectric substrate leads to a small shift in the values of these characteristics.

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