



Secondary electron emission from the surface covered by a dust layer

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Bodies immersed in the plasma are charged to the floating potential that is determined by a balance of the currents onto/from the surface. The collection of charged particles and the photoemission current dominate but if the temperature of the electron component of the ambient plasma is high enough (10 eV or more) the secondary electron emission current should be considered. For an explanation of observed surface potentials of the bodies covered with a dust layer like the Moon, a depression of the secondary electron emission yield by a factor of 2 or 3 with respect to the smooth planar surface is expected. However, our previous calculations of an influence of the surface roughness on the secondary electron emission from dust grains have shown that these effects do not lead to required yield reduction. The present paper is devoted to a search for dust grain configurations on a planar surface that can provide the yield reduction consistent with observed surface potentials. The results are compared with the calculations of the yield from porous (lava type) surfaces. This approach can be also applied to other processes as the photoemission or ion induced electron emission.