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| Title: | Oscillatory polarization potential induced at a surface by a penetrating charge |
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| Abstract: | Considering a uniformly moving, swift charge entering a semi-infinite dielectric medium, the polarization potential at the surface is studied using a standard macroscopic and quasistatic model. The bulk dielectric function is chosen on hydrodynamic form. The most prominent feature of the potential is found to be a "rings-on-water"-like manifestation of the surface plasma resonance, a surface wake phenomenon. In addition, the expected image-charge effect is reproduced. The space-time behavior of the potential at the surface is illustrated in a typical case. |