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Transition Radiation on Surface Waves

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We investigate the electromagnetic fields and the radiation from a charged particle intersecting the boundary between two dielectric media on which surface waves are excited. A formula is derived for the spectral-angular density of the radiation intensity assuming that the amplitude of the surface wave is small compared with the corresponding wavelength. The dependence of the peaks in the angular distribution of the radiation intensity on the characteristics of the surface wave is discussed. In addition we consider the possibility for the determination of the surface profile by using the properties of the radiation.

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