

ELECTROMAGNETIC SURFACE WAVES AND BREWSTER WAVES AT THE INTERFACES OF CONDUCTIVE MEDIA

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Similarities and distinctions are studied between the Cases of Fresnel's problem about reflection and refraction of electromagnetic waves at Brewster's angle (Brewster's waves) and the problem of exciting electromagnetic surface waves on a plane interface of a conductive medium (the interface between metallic surface and marine water). It is demonstrated that, for $\varepsilon''(\omega) \gg |\varepsilon'(\omega)| \sim 1$ their spectra under the conditions studied are practically identical, while the structures of the fields differ considerably, the phase velocities of the waves being close to the speed of light in vacuum.

The Brewster wave co-travels with the source (the incident wave), i.e. it cannot exist without a source, while the electromagnetic surface wave can break away from its source and propagate without it (separately from the source).

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