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Rayleigh Wave Diffraction on Surface Elastic Inclusion in the Half-Space

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Abstract:

The diffraction of the Rayleigh wave on a half-circular elastic inclusion which is located perpendicular to the half-space surface is considered. The low-frequency oscillations spectrum is analyzed. Using the method of boundary integral equations (BIE), the problem is reduced to the integral equations with respect to unknown defect opening functions. The mode-I stress intensity factors as functions of angular coordinate of an inclusion front point and wave number for various relations between the materials parameters are computed.

Keywords: surface compliant inclusion, half-space, Rayleigh wave diffraction, boundary integral equation method, dynamic stress intensity factor

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