

## Rayleigh-type waves in nonlocal elasticity

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**Abstract:** Surface waves in nonlocally elastic solids are considered. An asymptotic approach using the ratio of the characteristic internal size to a macroscale wave length as a small parameter, is developed. The results based on differential and integral formulations in nonlocal elasticity are compared. The effect of nonlocal boundary layers localized near free surface is addressed in detail. It is demonstrated that the differential and integral formulations are not equivalent. In addition, the issue of the solvability of the surface wave problem within the framework of integral nonlocal elasticity is raised.

**Keywords:** nonlocal, integral, differential, Rayleigh wave, boundary layer