Abstract

Heaviside Analytical Solutions of Nonlocal Wave Equations in Inhomogeneous, Dispersive Media

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Heaviside operational methods are used to obtain analytical solutions of various nonlocal wave equations, arising in the context of wave propagation studies in inhomogeneous, dispersive media. The results obtain for auxiliary condition scenarios in the direct and inverse problem cases. For example, by employing the results in conjunction with meromorphic function construction techniques, material properties[e.g., the phenomenological inhomogeneous, dispersive index of refraction] may be calculated explicitly from experimental data.