

Solution of Some Boundary Value Problems of the Generalized Theory of Thermo-Piezoelectricity

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Abstract : We have considered a non-classical model of dynamical problems for a conjugated system of differential equations arising in thermo-piezoelectricity, which was formulated by Toupin - Mindlin. The basic concepts and the general theory of solvability for isotropic homogeneous elastic media is considered. They are worked by using the methods the Laplace integral transform, potential method and singular integral equations. Approximate solutions of mixed boundary value problems for finite domain, bounded by the some closed surface are constructed. They are solved in explicitly by using the generalized Fourier's series method.

Keywords : thermo-piezoelectricity, boundary value problems, Fourier's series, isotropic homogeneous elastic media

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