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An Eshelby inclusion of parabolic shape in a Kirchhoff laminated anisotropic thin plate.
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An analytical solution to the Eshelby problem of a parabolic inclusion with uniform strains and curvatures in a middle plane of an infinite laminated anisotropic thin plate is derived. With aid of the Stroh octet formalism, the elastic field in an infinite Kirchhoff plate was obtained. The plate contains a parabolic Eshelby inclusion. The uniformity of elastic fields of membrane stresses, bending moments, strains, curvatures inside the parabolic inclusion are shown. Non-uniform elastic field in the exterior of the parabolic inclusion was obtained. The internal uniform elastic field and the exterior non-uniform elastic field in the vertex of the parabola are determined explicitly. The obtained solution is employed to study the elastic field inside a through-thickness elliptical elastic inhomogeneous inclusion embedded within a parabolic inclusion. It was established that the elastic field inside the elliptical inhomogeneity remains uniform.

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MSC:

- [74K20](#) Plates
- [74E05](#) Inhomogeneity in solid mechanics
- [74E30](#) Composite and mixture properties
- [74S70](#) Complex-variable methods applied to problems in solid mechanics
- [74G05](#) Explicit solutions of equilibrium problems in solid mechanics

Keywords:

[Stroh octet formalism](#); [analytical solution](#); [uniform mid-plane eigenstrain](#)

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