

ON ONE PROBLEM OF THE PLANE THEORY OF VISCOELASTICITY FOR A
CIRCULAR PLATE WITH POLYGONAL HOLE

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The problem of the plane theory of viscoelasticity for a circular plate with a polygonal hole is considered according to the Kelvin–Voigt model. The external boundary of the plate is assumed to be subjected to the normal contractive force (pressure), and a rigid smooth washer of a somewhat larger size is embedded into the hole in such a way that normal displacements of the boundary points take constant values, in the absence of friction.

Using the methods of conformal mappings and boundary value problems of analytic functions, the unknown complex potentials are constructed efficiently (in an analytic form). The estimates of these potentials in the vicinity of angular points are given.