THE PROBLEM OF FINDING AN EQUALLY STRONG CONTOUR FOR THE VISCOELASTIC RECTANGULAR REGION

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The problem of finding an equally strong contour inside a rectangular viscoelastic plate according to the Kelvin-Voigt model is considered. It is assumed that normal compressive forces with given principal vectors (or constant normal displacements) are applied on the sides of the rectangle by means of a linear absolutely rigid punches, and the unknown part of the boundary (the equally strong contour) is free from external forces. The equal strength of the searching contour lies in the fact that at each point of the contour the tangential normal stress takes the constant value (generally it depends on both the point and the time). To solve the problem, methods of conformal mappings and boundary value problems of analytic functions are used, and the equation of the desired contour, as a function of point and time, is constructed efficiently (in an analytical form).