

# On one contact problem of plane elasticity theory with partially unknown boundary.

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## Annotation

The paper addresses to contact problem of plane elasticity theory with partially unknown boundary. To every segment of the broken line of the elastic body are applied absolutely smooth, with rectilinear bases, stamps which are under action of the force. Unknown full-strength part of the boundary is free from external forces. Those contours are named full-strength contours at which the minimum of maximal value of tangential normal stresses (tangential normal moments) will be achieved. It is proved that this condition is valid where tangential normal stresses (tangential normal moments) value maintain the constant value. The solvability of these problems provides stress optimal distribution at the boundary by selecting the appropriate boundary. Developed a method by which the considered problem with partially unknown boundary reduced to the known boundary value problem of analytical function theory. The numerical analysis and corresponding diagrams are constructed. Using the methods of complex analysis [1], the unknown full-strength part of the boundary and a stressed state of the body are defined.

## References

1.Muskhelishvili, N.: Some Basic Problems of the Mathematical Theory of Elasticity. Fundamental Equations, Plane Theory of Elasticity, Torsion and Bending, XXXI. Noordhoff International Publishing, Leyden, (1975).