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**On solution of elliptical interface crack problem.** (English) [Zbl 0989.74063](#)

Ramm, A. G. (ed.) et al., Operator theory and its applications. Proceedings of the international conference, Winnipeg, Canada, October 7-11, 1998. Providence, RI: American Mathematical Society (AMS). Fields Inst. Commun. 25, 485-496 (2000).

Summary: We study the problem of crack of elliptical shape located between two bonded dissimilar elastic half-spaces and subjected to arbitrary loads. A solution is obtained by using the corresponding traction boundary pseudodifferential equations. Resulting equations are then solved by means of an analytical-numerical method. Strain energy release rates along the crack contours are presented for elliptical cracks with different ratios of semiaxes, and for half-spaces with different ratios of elastic constants. For special cases the results are compared with available exact solutions.

For the entire collection see [\[Zbl 0943.00054\]](#).

**MSC:**

[74R10](#) Brittle fracture

[74G10](#) Analytic approximation of solutions (perturbation methods, asymptotic methods, series, etc.) of equilibrium problems in solid mechanics

**Keywords:**

series solution; strain energy release rates; traction boundary pseudodifferential equations; analytical-numerical method; elliptical cracks