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Thermoelastic Problems for a Bimaterial with Defects/singularities

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The paper presents a method for solution of 2D thermoelastic problems for a bimaterial with internal singularities/defects, like cracks, dislocations. A heat source can also be considered as the singularity. A bimaterial interface is either virgin or contains an interface crack. The method is based on the well-developed theory complex potentials, analytical continuation theorem and superposition technique and leads to singular integral equations for the problems in hand. As examples of the effectiveness of this technique the solution of some problems are presented and discussed. In particular, for the thermoelastic problem of the system of internal microcracks and an interface crack closed form expressions for the stress intensity factors at the interface crack tips are derived.

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