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Solving of Indirect Problems Using Trefftz Method

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In indirect problems we can observe distribution of certain quantities inside the considered region of a given structure and, after that, knowing this distribution, we can approximately define the whole boundary-value problem. Usually this is done by virtue of minimization of a special form of a functional that is dependent on the searched, unknown boundary values. Thus this leads to a kind of optimization procedure. Some improvements of such a procedure are proposed. These improvements are based on using the generalized Trefftz method (in which the trial functions identically fulfill the given partial differential equations) and the fact that the shape of considered structure remains unchanged. Also a method of direct solving of such kind of indirect problems is proposed. The methods are illustrated in the series of numerical examples.

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