Method for reduction dimension of the problem by two with application in thermoelasticity.

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Approach to reduction of the problem dimension, which formulated in form of syst em of partial differential equation in N-dimensional Euclidian space by two have been developed. Roughly speaking the approach consists in the following. Parame ters of the problem are expanded into polynomial Legendre series in terms of the thickness. Then obtained N-1 - dimensional problem is solved using boundary int egral equation method (BIEM).

The expansion of the elastostatic equations into polynomial Legendre series in t erms of the thickness in the shell theory is widely used (see [1] for references). Such approach has been used in for solution of the unilateral contact problem through the heat-conducting layer for plates [2]. Some addition theoretical res ults and numerical examples related to that problem have been presented in [3, 4].

The problem of the application of the BIEM to the analysis of the differential e quations obtained by expansion equations into polynomial Legendre series in term s of the thickness and particularly equations of the elastic shells with complex geometry has been studied in [5, 6].

The approach developed in above mentioned publication is generalized, new theore tical results and numerical examples will be presented in the work. References:

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