

Integral representations for solutions of some BVPs for steady elastic oscillations

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We consider some basic three-dimensional boundary value problems (BVPs) for steady elastic oscillations. In particular we deal with the Dirichlet problem of representability of the solutions by means of a simple layer potential. The main result concerns the solvability of the boundary integral system of equations of the first kind; this is obtained by using the theories of differential forms and reducible operators. We also consider the traction problem; representability of its solution by means of a double layer potential is presented instead of the more usual simple layer potential. This talk is based on joint work with A. Cialdea and V. Leonessa ([1] and [2]).

References

- [1] A. Cialdea, V. Leonessa, A. Malaspina, *On the simple layer potential ansatz for steady elastic oscillations*, Lecture Notes of TICMI, 21 (2020), pp. 29–42.
- [2] A. Cialdea, V. Leonessa, A. Malaspina, *On the traction problem for steady elastic oscillations equations: the double layer potential ansatz*, accepted for publication in: Rendiconti del Circolo Matematico di Palermo Series 2, 2022.