
io-port 00718913**Mikhlin, Solomon G.; Morozov, Nikita F.; Paukshto, Michael V.****The integral equations of the theory of elasticity.**

Teubner-Texte zur Mathematik. 135. Leipzig: Teubner Verlagsges. 375 p. DM 64.80 (1995).

Monographs which specifically treat the subject integral equations (IE) *and* some physical discipline (e.g., theory of elasticity (TE)) do not appear in great number; see e.g. (1) *R. S. Anderssen, F. R. de Hoog and M. A. Lukas* (eds.) [The application and numerical solution of integral equations (1980; Zbl 0423.00019)]; (2) *M. A. Jaswon and G. T. Symm* [Integral equation methods in potential theory and elastostatics (1977; Zbl 0414.45001)]; (3) *P. Niyogi* [Integral equation method in transonic flow (1982; Zbl 0478.76071)]; (4) *V. Z. Parton and P. I. Perlin* [Integral equations in elasticity (1982; Zbl 0497.73002)]. IE *and* TE has been dealt with in some books, but monographs devoted specifically to that subject are rare (2), (4). Therefore the present book is a valuable addition to the literature on IE and TE, also because it is more detailed and thorough and/or cover a larger area than (2) and (4). The book describes the subject in a clear and thorough manner, with references, and it is done at a high mathematical level, but the necessary prerequisites are stated with suitable references. The chapters of the main text are: 1. General results on linear integral equations, 2. One-dimensional singular integral equations, 3. Two-dimensional singular integral equations, 4. Approximate solution of integral equations, 5. The integral equations of classical two-dimensional problems, 6. Potential theory for basic three-dimensional problems, 7. The contact problems of the theory of elasticity, 8. Problems of the theory of cracks. Furthermore there are two Appendices, and a list with around 220 references. The typography and printing is appealing, and only a few misprints were spotted in the list of references. The division of the material into Parts, Chapters, and Paragraphs is not unusual, but may be found confusing. In the preface it is mentioned that the publishing of this book has been delayed so that some new material has not been incorporated, e.g. the works by W. Wendland and his school. The book does not contain much material specifically on numerical methods. But this does not change the fact that it is a very interesting book, which fills a gap in the library of persons interested in applied mathematics.

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Keywords: potential theory; bibliography; integral equations; theory of elasticity; linear integral equations; singular integral equations; contact problems; cracks