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THE FIRST RESOURCE FOR MATHEMATICS

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Methods of mathematical physics. 4. Aufl. (Methoden der mathematischen Physik.) (German) Zbl 0788.00012

Berlin: Springer-Verlag. xviii, 545 p. DM 68.00 /hc (1993).

What a compliment for a textbook to get reprinted 70 years after its first publication – and not for historical purposes, but still with the same intention of providing a decent and well readable introduction to some aspects of mathematical physics.

This book contains the first volume of the early edition plus (as an appendix) one chapter from the second volume. It covers the Fredholm theory of linear integral equations and several aspects of boundary and eigenvalue problems from physics, especially from vibrational systems. The main tools are variational methods which get developed in a separate chapter. In another chapter the special functions which appear as eigenfunctions (like Bessel, Legendre, spherical harmonics) are studied. In the appendix the existence of solutions of boundary value problems for elliptic partial differential equations is proven (again with variational means).

Reviewer: E.Weimar-Woods (Berlin)

MSC:

00A79	Physics
01A75	Collected or selected works; reprintings or translations of classics
00-01	Introductory exposition (textbooks, tutorial papers, etc.) pertaining to mathematics in general
35Jxx	Elliptic equations and elliptic systems

Cited in **44** Documents

Keywords:

boundary value problems; mathematical physics; Fredholm theory of linear integral equations; eigenvalue problems; vibrational systems; variational methods; special functions; existence of solutions; boundary value problems for elliptic; equations

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