



Elgenfunction Expansions Associated With Second Order Differential Equations (Hardback)

By E. C. Titchmarsh

Read Books, United Kingdom, 2008. Hardback. Condition: New. Language: English. Brand new Book. EIGENFUNCTION EXPANSIONS ASSOCIATED WITH SECOND-ORDER DIFFERENTIAL EQUATIONS by E. C. TITCHMARSH. PREFACE: THE idea of expanding an arbitrary function in terms of the solutions of a second-order differential equation goes back to the time of Sturm and Liouville, more than a hundred years ago. The first satisfactory proofs were constructed by various authors early in the twentieth century. Later, a general theory of the singular cases was given by Weyl, who based i on the theory of integral equations. An alternative method, proceeding via the general theory of linear operators in Hilbert space, is to be found in the treatise by Stone on this subject. Here I have adopted still another method. Proofs of these expansions by means of contour integration and the calculus of residues were given by Cauchy, and this method has been used by several authors in the ordinary Sturm-Liouville case. It is applied here to the general singular case. It is thus possible to avoid both the theory of integral equations and the general theory of linear operators, though of course we are sometimes doing no more than adapt the latter theory to the...



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