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| 1. Record Nr. | UNINA9910484213903321 |
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| Titolo | Special Functions and Generalized Sturm-Liouville Problems // by Mohammad Masjed-Jamei |
| Pubbl/distr/stampa | Cham : , : Springer International Publishing : , : Imprint : Birkhäuser, , 2020 |
| ISBN | 3-030-32820-1 |
| Edizione | [1st ed. 2020.] |
| Descrizione fisica | 1 online resource (XI, 313 p. 107 illus., 2 illus. in color.) |
| Collana | Frontiers in Mathematics, , 1660-8046 |
| Disciplina | 515.35 515.352 |
| Soggetti | Differential equations Special functions Ordinary Differential Equations Special Functions |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Nota di contenuto | Generalized Sturm-Liouville Problems in Continuous Spaces -- Generalized Sturm-Liouville Problems in Discrete Spaces -- Generalized Sturm-Liouville Problems in q-spaces. |
| Sommario/riassunto | This book discusses theoretical and applied aspects of Sturm-Liouville theory and its generalization. It introduces and classifies generalized Sturm-Liouville problems in three different spaces: continuous, discrete, and q-discrete spaces, focusing on special functions that are solutions of a regular or singular Sturm-Liouville problem. Further, it describes the conditions under which the usual Sturm-Liouville problems with symmetric solutions can be extended to a larger class, particularly highlighting the solutions of generalized problems that result in new orthogonal sequences of continuous or discrete functions. Sturm-Liouville theory is central to problems in many areas, such as engineering, mathematics, physics, and biology. This accessibly written book on the topic is a valuable resource for a broad interdisciplinary readership, from novices to experts. |