



Operator Triplets In Applied Mathematics

By Alexander A. Dorfmann

Shaker Verlag Mai 2013, 2013. Buch. Book Condition: Neu. 21x14.8x cm. Neuware - Theory of integral transforms is an important part of applied mathematics and signal processing. An integral transform can be defined by a pair of orthogonal integral operators, whose kernels can be represented in terms of functions of two variables. Usually kernels of these operators are expressed by means of regular functions and based on complete orthogonal systems. The integral transforms yield a power tool for investigation of differential, difference and integral equations. Fractional integrals also consist of pair of orthogonal operators, however their kernels involve weak-singular generalised functions of power type. Abel integral equations form foundation of theory of the fractional integrals. There is an interesting feature of integral operators: various integral operators can be combined among themselves by means of operator product. These combinations of integral transforms open new ways and opportunities for solving of problems of applied mathematics. For example, the fractional integrals can connect two integral transforms with different regular kernels. Mathematically this relation can be expressed by means of discontinuous integrals. Thus the well-known discontinuous Weber integrals can be treated as a relation of Fourier transform and Hankel transform by means of Abel...



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