Approximation Theory and Special Functions
ATSF 2026 Conference - 9th Series
September 2-5, 2026, Ankara - Türkiye

On the Spectral and Scattering Properties of Generalized Eigenparameter-Dependent Impulsive Quantum Sturm–Liouville Equation

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Abstract

We present an investigation about scattering analysis of boundary value problem for a q-Sturm-Liouville equation with impulsive condition and boundary conditions depending on generalized eigenvalue parameter. Here, we give Jost solution and the scattering function of this problem and we find the properties of scattering function by using the scattering solutions. We also give an asymptotic equation for the Jost solution of this problem. We also find the Green function and resolvent operator of this boundary value problem. Finally, we apply the new results on an example.

Keywords: Scattering theory, scattering function, impulsive condition.

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