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Algebraic Treatment of Scattering via the Manning-Rosen Potential Related to the SO(2, 1) Group

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Abstract: In this study, we consider SO(2,1) \supset SO(1,1) subgroup reduction from one dimensional scattering systems related to SO(2,1). As an analytical application, we show via algebraic approach the Manning-Rosen potential belongs to the class of potentials corresponding to the reduction SO(2,1) \supset SO(1,1). The wave function and the scattering matrix of the system with this potential were determined.

Key Words: Algebraic approach, Manning Rosen potential, Natanzon potentials, One-dimensional scattering, Scattering theory

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