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Supersymmetry and Schrödinger-type Operators with Distributional Potentials.

Building on work on Miura's transformation by Kappeler, Perry, Shubin, and Topalov, we develop a detailed spectral theoretic treatment of Schrödinger operators with matrix-valued potentials, with special emphasis on distributional potential coefficients. Our principal method relies on a supersymmetric (factorization) formalism underlying Miura's transformation, whereby spectral theoretic results for the Schrödinger operator—with distributional potential—may be deduced by relying on the known spectral theory of the corresponding supersymmetric Dirac-type operator. (Received February 10, 2014)