DISCRETE DIRAC SYSTEM: RECTANGULAR WEYL FUNCTIONS, DIRECT AND INVERSE PROBLEMS

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Abstract. A transfer matrix function representation of the fundamental solution of the general-type discrete Dirac system, corresponding to rectangular Schur coefficients and Weyl functions, is obtained. Connections with Szegő recurrence, Schur coefficients and structured matrices are treated. A Borg-Marchenko-type uniqueness theorem is derived. Inverse problems on the interval and semi-axis are solved.


Keywords and phrases: Discrete Dirac system, Szegő recurrence, Weyl function, inverse problem, $j$-theory, Schur coefficient, Borg-Marchenko-type theorem.

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