

# Discrete skew self-adjoint canonical systems with rational Weyl functions

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A discrete analog of a skew self-adjoint canonical system with a so-called pseudo-exponential potential will be presented. The associate Weyl function is a proper square rational matrix function. The corresponding direct and inverse problem will be solved explicitly using state space techniques from mathematical system theory. As an application explicit solutions will be given of a discrete integrable nonlinear equation related to the isotropic Heisenberg magnet model. The talk is based on joint work with A.L. Sakhnovich.