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A Talk at the 2nd ISNMP Conference

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Regular Session:

Speaker: Ying Shi (Zhejiang University of Science and Technology, P.R. China)

Title: *Matrix Darboux transformations for discrete integrable systems*

Abstract: This talk is devoted to matrix Darboux transformations for discrete integrable systems. It is motivated by earlier work on reductions of the Hirota-Miwa equation and Darboux transformations for certain members of the ABS list. We consider Lax pairs in matrix form for discrete integrable systems, while the underlying potentials remain scalar. Within this framework, we construct Darboux transformations at the matrix level and investigate their algebraic properties. The matrix formulation provides a systematic way for generating new solutions from known ones and enables an efficient description of iterated transformations.