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Entanglement-assisted state discrimination and entanglement preservation ÖZENÇ GÜNGÖR, Case Western Reserve Univ, SADI TURGUT, Middle East Technical Univ — In this study, the following scenario is considered: there are two qubits possessed by two parties at different locations. Qubits have been prepared in one of a maximum of four, mutually-orthogonal, entangled states and the parties wish to distinguish between the states by using local operations and classical communication. Although in general it is not possible to distinguish between four arbitrary states, the parties can spend some pre-shared entanglement to achieve perfect discrimination between four qubit states and can also preserve the entanglement of the states after discrimination. This is shown by employing the theory of majorization and the connections between entanglement transformations and state discrimination protocols. References: Ö. Güngör, S. Turgut, "Entanglement-assisted state discrimination and entanglement preservation," Physical Review A 94, 032330 (2016) and references in.

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