

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

MUB Entanglement Patterns by Transformations in Phase Space

JAY LAWRENCE¹, Dartmouth College, Hanover, NH 03755 — All possible MUB entanglement patterns for systems of N prime-state particles are obtained from standard ones by unitary transformations in the Hilbert space, thus preserving the relationships between the generalized Pauli operators, the phase point operators, and the MUB projectors. The transformations are described geometrically in discrete phase space. Illustrative examples show the invariance of the total entanglement content and the connection of entanglement with Galois fields. Different field representations for the same dimension may produce inequivalent MUB sets. This work provides alternative constructions and generalizes previous work on qubit systems [1,2].

[1] J L Romero, G Bjork A B Klimov, and L L Sanchez-Soto, Phys. Rev. A **72**, 062310 (2005).

[2] A B Klimov, J L Romero, G Bjork, and L L Sanchez-Soto, Ann. Phys. **324**, 53 (2009).

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Date submitted: 24 Nov 2010

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