1014-81-1478 **David W. Lyons*** (lyons@lvc.edu), Mathematical Sciences, 101 N. College Avenue, Annville, PA 17003, and **Scott N. Walck** (walck@lvc.edu), Physics Department, 101 N. College Avenue, Annville, PA 17003. *Classification of multiparticle entanglement types with minimum orbit dimension.*

The group of local unitary transformations acts on the space of n-qubit pure states, decomposing it into orbits. In previous work the authors identified the smallest possible orbit dimension, equal to $3n/2$ for n even and $(3n+1)/2$ for n odd, where n is the number of qubits. In this talk we discuss further results which classify orbits with minimum dimension: any state with minimum orbit dimension must be a product of singlet states (together with an unentangled qubit for a system with an odd number of qubits); furthermore, such states are classified up to local unitary equivalence by the sets of pairs of qubits entangled in singlets. (Received September 28, 2005)