1046-81-808 **Stephanie A. Blanda*** (sab002@lvc.edu), 1793 Ashton Drive, Lebanon, PA 17046. *Multiparty Quantum States with Nearly Maximal Stabilizer.*

A goal of quantum information is the development of quantum computers, which would perform certain computational tasks exponentially faster than classical computers. In analogy with classical computers, which have the bit as their basic unit of information, the quantum bit (qubit) is the basic unit of information in quantum computing. Unlike classical bits, a qubit state can be a mixture (or superposition) of 0 and 1. Our research studies the n-qubit phenomenon called entanglement – an important but poorly understood resource for quantum information processing and communication. Entanglement properties are shared by states that are equivalent under the action of the local unitary (LU) group. We get a partial classification of entanglement by classifying stabilizer subgroups of the LU group. My work presented in this talk solves the problem of what n-qubit states (for $n > 2$) have stabilizers with one less than the maximum possible dimension. (Received September 11, 2008)