

Abstract Submitted  
for the 4CF17 Meeting of  
The American Physical Society

**Exploring Interparticle Purity for Quantifying Entanglement in Binary Systems** JASON SAUNDERS, Brigham Young University — Entanglement is a powerful tool in quantum information and quantum technology. Quantifying it can be tricky - different measures are used to capture specific aspects. Interparticle purity is presented as a useful measure of entanglement in binary pure-state systems. It quantifies how much of an entangled system's information is contained within its whole, rather than within its two parts, by computing the purity of the reduced density matrices. We find the maxima and minima of the interparticle purity for a two qubit system, and show that they correspond to separable states and Bell states, respectively. We explore the extension to two qu-nit systems and the relationship with Von Neumann entropy.

Jason Saunders  
Brigham Young University

Date submitted: 15 Sep 2017

Electronic form version 1.4