1046-81-1509 **Israel Klich*** (ik3j@Virginia.EDU). *Quantum Noise and the Entanglement Entropy of Fermions.*

Entanglement entropy is a measure of quantum many body correlations between the parts of a many body system. It has emerged as a useful quantity in broad areas of theoretical physics, from cosmology to condensed matter and quantum information. In this talk I will discuss the problem of entanglement entropy of fermions and it's relation to Widom's conjecture. I will also describe a universal relation between entanglement entropy and statistics of current flowing through a quantum point contact. This relation provides a way to experimentally measure entanglement entropy, and test seminal results of conformal field theory such as the prediction of Holzhey, Larsen and Wilczek for entanglement entropy of fermions. (Received September 15, 2008)