Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Studies in Quantum Plasma Turbulence[1] CASSANDRA ODUOLA, Texas Southern — Turbulence is a phenomenon associated with chaotic and stochastic change in properties. At the quantum level, turbulence can be found in quantum fluids also known as super fluids; a friction free state of matter containing charged particles. Super fluidity has recently been observed at the core of neutron stars. These fluids containing also act as superconductors. Studies have found that the remaining protons in the star's core are also in a superfluid state and because they carry a charge also form a superconductor. This study employs the non-linear Schrodinger coupled with Poisson's equation for three dimensional quantum turbulence simulations. These simulations follow Fermi-Dirac statistics. Research has found evidence of soliton solutions to the non-linear Schrodinger. Solitons are self-reinforcing waves in nature that are also symmetric. Evidence of these solitons has been found in quantum turbulence. In order to verify the existence of solitons in this model, we aim to model solutions to the Non Linear Schrodinger in 1D and to obtain data to verify the these solitons.

[1]Would like to thank NSF

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Date submitted: 11 Nov 2013 Electronic form version 1.4