1118-83-24 **Andrew S. Goetz** and **Alan R. Parry*** (alan.parry@uconn.edu). *Parametrizations of the Poisson-Schrödinger Equations in Spherical Symmetry.*

We consider solutions to the Poisson-Schrödinger system of equations of the form $f(t,r) = \mathrm{e}^{i(m-\omega)t}F(r)$. There exist well-known standing wave solutions of this type called static states. We recall that these solutions can be parametrized by several different choices of a set of three parameters, any two of which can be chosen to be continuous while the third becomes discrete. Each value of the discrete variable corresponds to a static state with a different number of nodes (i.e. zeros) of F. For convenience we parametrize the solutions by the total mass M_{tot}, the radius R_{99} containing 99% of the total mass, and the particle mass term m of the system. We show that other reasonable choices of parameters are tightly correlated to M_{tot}, R_{99}, and m and hence are tightly related to each other as well. We also show that for a given choice of any two of M_{tot}, R_{99}, and m, there is a minimum value of the remaining discrete variable which is always obtained by the 0-node ground state. We explicitly write down how this value depends on the choice of the other two parameters. We use these explicit relationships to verify two known related results and describe a possible application of this work. (Received December 23, 2015)