1049-35-174 **Stephen Gustafson** (gustaf@math.ubc.ca), Department of Mathemtics, The University of British Columbia, Vancouver, BC V6T 1Z2, Canada, and **Tuoc Van Phan*** (phan@math.ubc.ca), Department of Mathematics, The University of British Columbia, Vancouver, BC V6T 1Z2, Canada. *Stable Directions for Degenerate Excited States of Nonlinear Schrödinger Equations.*

We consider the nonlinear Schrödinger equations $i\partial_t\psi = H_0\psi + \lambda|\psi|^2\psi$ in $\mathbb{R}^3$ where $H_0 = -\Delta + V$ and λ is an order one constant which can be positive or negative. Assume that the potential V is radial and decays sufficiently fast at infinity. Assume also that the linear Halmitonian H_0 has only two discrete eigenvalues $e_0 < e_1 < 0$ where e_0 is simple and e_1 has multiplicity three. We show that there exist two classes of nonlinear excited states of the equation and for certain finite codimension subset in the space of initial data, we construct solutions ψ converging to these excited states in both non-resonant and resonant cases. (Received March 03, 2009)