1086-34-2956 **My Linh Nguyen*** (mln018200@utdallas.edu), 800 W Campbell Rd, Richardson, TX 75080.
Multiple solutions to second order symmetric boundary value problems: equivariant degree approach.

The solubility of second order boundary value problems (BVPs) is attracting a big deal of attention for a long time. As a matter of fact, symmetric BVPs (i. e. the ones having the right-hand side commuting with some compact Lie group representation) almost always admit multiple solutions since the solutions are coming in orbits. We develop a new approach to the problem in question based on the usage of the so-called equivariant degree introduced by J. Ize et al. – a topological tool allowing "counting" orbits of solutions to symmetric equations in the same way as the usual Brouwer degree does it, but according to their symmetric properties. This method is an alternative and/or complement to the equivariant singularity theory developed by M. Golubitsky et al., as well as to a variety of methods rooted in Morse Theory, Lusternik- Schnirelman Theory and Morse-Floer complex techniques used for a treatment of variational problems with symmetries. We establish multiplicity results for the second order BVPs exhibiting different symmetric topological behavior near the origin and infinity. General results are illustrated by concrete examples exhibiting dihedral symmetries. This is a joint work with Z. Balanov and W. Krawcewicz. (Received September 26, 2012)