1131-37-115 **Qingwen Hu***, 800 W. Campbell Road, FO. 35, Richardson, TX 75080. *Global Hopf bifurcation for a model of regulatory dynamics with state-dependent delay.*

We begin with a short introduction to differential equations with state-dependent delay. Motivated by modeling regulatory dynamics, we develop a global Hopf bifurcation theory for differential equations with a state-dependent delay governed by an algebraic equation, using the S^1-equivariant degree. We apply the global Hopf bifurcation theory to the prototype model of genetic regulatory dynamics with threshold type state-dependent delay vanishing at the stationary state, for a description of the global continuation of the periodic oscillations. (Received July 09, 2017)