1119-37-63 **Ben Webb*** (bwebb@mathematics.byu.edu), 308 TMCB, Brigham Young University, Provo, UT 84602. *Intrinsic stability of time-delayed dynamical networks and multidimensional systems.*

In real networks the time it takes to send and process information inevitably leads to time delays in the network's dynamics. These time-delays are important to the network's dynamics as they are often the source of instability and poor performance. In fact, the introduction of time delays can both destabilize a stable system and stabilize one that is unstable depending on the system and where these delays are placed. In this talk we introduce a stronger form of stability that is preserved under changes to a network's structure of time delays. This we call intrinsic stability, which can be used to simplify the stability analysis for both dynamical networks and multidimensional systems. This is joint work with L. A. Bunimovich. (Received February 04, 2016)