1106-VL-2583 **Stanley R Huddy*** (huddys@newpaltz.edu), SUNY New Paltz Department of Mathematics, Faculty Office Building, 1 Hawk Dr., New Paltz, NY 12561, and **Joseph D Skufca**. *Complete Synchronization on Networks of Identical Oscillators with Diffusive Delay-Coupling.*

We examine networks of identical oscillators with diffusive delay-coupling and a single, constant delay tau, and identify necessary conditions for complete complete synchronization. We show that complete synchronization is possible only when at least one of the following conditions is met: (1) all nodes have the same in-degree, (2) the node dynamics (the uncoupled system) have a tau-periodic solution, and synchronized system solution is simply that periodic solution, or (3) the synchronized solution is a fixed point. Numerical simulations of three five-node networks are presented as examples of synchronization on such networks. (Received September 16, 2014)