1068-93-91 **Jing Wang*** (wangj@cookman.edu), Department of Computer Engineering, Bethune-Cookman University, Daytona Beach, FL 32114. *Distributed Consensus Control for A Class of Nonholonomic Systems.*

In this paper, we propose a new distributed consensus control design for a class of networked dynamical systems with inherent nonlinear dynamics. A number of conditions are established in terms of the properties of the cooperative steering control for achieving cooperative behaviors. In particular, under assumptions that the considered individual nonlinear system is controllable and there exists a steering control in either feedback or open-loop form to move the system from one state to the other in finite time, the sampled-data cooperative steering control law can be designed based on the information received from the neighboring systems within the current sensor range. It is proved that the proposed cooperative steering control is cooperatively stabilizing if network is connected over time together with a mild condition imposed on sampling time. As an illustrative application case, cooperative steering control algorithms in closed form are presented to address the consensus problem of nonholonomic robot systems in chained form. Simulation results are provided to validate the proposed algorithms. (Received January 14, 2011)