1006-93-28   **Chunjiang Qian*** (`chunjiang.qian@utsa.edu`), University of Texas at San Antonio, 6900 North Loop 1604 West, San Antonio, TX 78249-0669. *Global Output Feedback Stabilization of Nonlinear Systems: A Homogeneous Domination Approach.*

We address the open problem of global output feedback stabilization for a general class of uncertain systems whose nonlinearities are neither linearly growing nor Lipschitz in unmeasurable states. To solve the problem, we develop a novel *homogeneous domination approach* for the systematic construction of a global output feedback stabilizer. The design procedure is accomplished in two steps: i) we first design for the nominal linear system a unique *homogeneous* output feedback controller whose construction is genuinely nonlinear, rather than linear as used in the literature; ii) then we scale the homogeneous observer and controller with an appropriate choice of gain to render the nonlinear system globally asymptotically stable. The *homogeneous domination approach* not only enables us to completely remove the linear growth condition, which has been the common assumption for the global output feedback stabilization, but also provides us a new perspective to deal with the output feedback control problem for nonlinear systems. (Received January 11, 2005)