1068-93-40 **Michael Malisoff*** (malisoff@lsu.edu), Department of Mathematics, 303 Lockett Hall, Louisiana State University, Baton Rouge, LA 70803-4918. *Uniform Global Asymptotic Stability of Adaptive Cascaded Nonlinear Systems with Unknown High-Frequency Gains.*

We study adaptive tracking problems for nonlinear systems with unknown control gains. We construct controllers that yield uniform global asymptotic stability for the error dynamics, hence tracking and parameter estimation for the original systems. Our result is based on a new explicit, global, strict Lyapunov function construction. We illustrate our work using a brushless DC motor turning a mechanical load. We quantify the effects of time-varying uncertainties on the motor electric parameters using integral input-to-state stability. This work is joint with Frederic Mazenc and Marcio de Queiroz. (Received January 03, 2011)