1067-93-515 **Frederic Mazenc**, Projet INRIA DISCO, CNRS-Supelec, 3 rue Joliot Curie, 91192, Gif-sur-Yvette, France, **Michael Malisoff*** (malisoff@lsu.edu), Department of Mathematics, Louisiana State University, 303 Lockett Hall, Baton Rouge, LA 70803-4918, and **Marcio de Queiroz**, Department of Mechanical Engineering, Louisiana State University, Baton Rouge, LA 70803-6413. *Adaptive Tracking and Estimation for Nonlinear Control Systems.*

Given a nonlinear system

$$\dot{\mathbf{q}} = \mathcal{J}(t, \mathbf{q}, \mathbf{\Theta}, \mathbf{u}), \tag{1}$$

having a vector $\mathbf{\Theta}$ of uncertain constant parameters and a reference trajectory $\mathbf{q}_r$ and a suitably regular right hand side, the *adaptive tracking and estimation problem* is to design a dynamic feedback

$$\mathbf{u} = \mathbf{u}(t, \mathbf{q}, \mathbf{\Theta}_e), \quad \dot{\mathbf{\Theta}}_e = \tau(t, \mathbf{q}, \mathbf{\Theta}_e) \tag{2}$$

such that $\mathbf{q}_r(t) - \mathbf{q}(t) \to 0$ and $\mathbf{\Theta} - \mathbf{\Theta}_e(t) \to 0$ as $t \to +\infty$ for all initial conditions. I will present a brief survey on the known results for this problem. Then I will discuss a new family of dynamic feedbacks that solve the adaptive tracking and estimation problem for a class of systems that are affine in $\mathbf{\Theta}$. (Received September 11, 2010)