1077-93-306     **Aleksandra Gruszka\*** (`olka@math.lsu.edu`), **Michael Malisoff** (`malisoff@math.lsu.edu`) and **Frederic Mazenc** (`Frederic.MAZENC@lss.supelec.fr`). *Tracking Control and Robustness Analysis for PVTOL Aircraft under Bounded Feedbacks.*

We study feedback tracking problems for the planar vertical takeoff and landing (PVTOL) aircraft dynamics, which is a benchmark model in aerospace engineering. We provide a survey of the literature on the model. Then we construct new feedback stabilizers for the PVTOL tracking dynamics. The novelty of our work is in the boundedness of our feedback controllers and their applicability to cases where the velocity measurements may not be available, coupled with the uniform global asymptotic stability and uniform local exponential stability of the closed loop tracking dynamics, and the input-to-state stable performance of the closed loop tracking dynamics with respect to actuator errors. Our proofs are based on a new bounded backstepping result. We illustrate our work in a tracking problem along a circle. (Received August 19, 2011)