

1110-35-262

**Michael S. Jolly\*** ([msjolly@indiana.edu](mailto:msjolly@indiana.edu)), Department of Mathematics, 831 E. 3rd Street, Bloomington, IN 47405. *Data Assimilation by Feedback Control and Kalman Filters*. Preliminary report.

We present recent rigorous estimates for data assimilation via feedback control for dissipative systems. The relaxation of the solution to the feedback control system to a reference solution enables the evolution of a determining form, an ordinary differential equation in a space of trajectories. Every solution of the determining form evolves toward a steady state which is a trajectory on the global attractor of the original system. The determining form is employed to synchronize, i.e., remove noise from trajectories. Numerical computations compare the effectiveness of this approach is compared to the method of Kalman filters. (Received February 23, 2015)