1106-76-1652 **Aseel Farhat*** (afarhat@indiana.edu), **Evelyn Lunasin** and **Edriss Titi**. *A New Data Assimilation Algorithm for the 2D Navier-Stokes equations and the 3D α-Models of Turbulence.*

We introduce an abridged continuous data assimilation algorithm for the 2D Navier-Stokes, 2D Bénard problem and 3D subgrid scale α-models of turbulence. The novelty of this improved algorithm is on the reduction on the components of the observational data that needs to be measured and inserted into the model equation, in the form of a feedback control term, to recover the unknown reference solution. We show that for the 2D Navier-Stokes equations the approximate solutions constructed using observations in only one component of the velocity field converge in time to the reference solution. In the case of the 3D Leray-α model, we show that the approximate solutions constructed using only observations any two components, without any measurements on the third component, of the velocity field converge in time to the reference solution. (Received September 14, 2014)