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Nathan Pennington* (nathanpennington@creighton.edu), 2500 California Plaza, Omaha, NE 68178. *PDE's and Big Data.*

In this talk we consider a problem at the intersection of PDE's and big data analysis called Continuous Data Assimilation. In these problems, instead of being given an entire initial condition, we are instead given the evaluation of the initial condition on a large (but finite) set. The goal is to show that any solution to the PDE that matches those observations is asymptotic to a unique, global solution of a modified version of the PDE with initial condition equal to zero. The equation is modified from its original form by the presence of feedback terms which depend on the observations. This talk will outline this method by applying it to a model of the Navier-Stokes equation. (Received August 20, 2019)