College of Arts & Sciences
Department of Mathematical Sciences

Colloquium

Dr. Amy Braverman

Jet Propulsion Lab, California Institute of Technology

Thursday, January 18, 2018
Room 135, 60 West Charlton
4:00 – 5:00 pm

Uncertainty Quantification for Remote Sensing Data

Remote sensing data sets produced by NASA and other space agencies are the result of com- plex algorithms that infer geophysical state from observed radiances using retrieval algorithms. The processing must keep up with the downlinked data flow, and this necessitates computational compromises that affect the accuracies of retrieved estimates. The algorithms are also limited by imperfect knowledge of physics and of ancillary inputs that are required. All of this contributes to uncertainties that are generally not rigorously quantified by stepping outside the assumptions that underlie the retrieval methodology. In this talk we discuss a practical framework for un- certainty quantification that can be applied to a variety of remote sensing retrieval algorithms. Ours is a statistical approach that uses Monte Carlo simulation to approximate the sampling distribution of the retrieved estimates. We will discuss the strengths and weaknesses of this approach, and provide a case-study example from the Orbiting Carbon Observatory mission. .

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate Student Lounge Room 4118 French Hall West

UNIVERSITY OF Cincinnati