

STATISTICS COLLOQUIUM

MONDAY, MARCH 10, 2014

TALK: 4:15 PM — SCIENCE CENTER RM. 705

RECEPTION: 3:50 PM — SCIENCE CENTER, 7TH FLOOR

**“A Theoretical Framework for Calibration in Computer Models:
Parametrization, Estimation and Convergence Properties”**

**Rui Tuo
Chinese Academy of Sciences
Georgia Institute of Technology**

ABSTRACT

Calibration parameters in deterministic computer experiments are those attributes that cannot be measured or available in physical experiments or observations. Kennedy-O'Hagan (2001) suggested an approach to estimate them by using data from physical experiments and computer simulations. We study the estimation problem and show that a simplified version of the original KO method leads to asymptotically inconsistent calibration. This calibration inconsistency can be remedied by modifying the original estimation procedure. A novel calibration method, called the L_2 calibration, is proposed and proven to be consistent and enjoys optimal convergence rate. A numerical example and some mathematical analysis are used to illustrate the source of the inconsistency problem.

Coauthored with C. F. Jeff Wu.