

MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

Chih-Li Sung
Georgia Institute of Technology

Big Data in Computer Experiments

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10:20 AM - 11:10 AM
Refreshments 10:00 AM
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Abstract

Big data is everywhere. In computer experiments, it's being used to emulate complex systems being simulated in computer codes. Applications include rocket injector simulations and solar irradiance simulations. However, traditional approaches such as Gaussian process models often fail when the number of experimental samples is even moderately large. In this talk, a multi-resolution functional ANOVA (MRFA) model will be introduced as a computationally feasible emulation alternative. More generally, this model can be used for large-scale and many-input non-linear regression problems. Numerical examples and real applications demonstrate that the proposed model enjoys marked computational advantages. Data capabilities, both in terms of sample size and dimension, meet or exceed best available emulation tools while meeting or exceeding emulation accuracy.

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