

STATISTICS COLLOQUIUM

MONDAY, NOVEMBER 30, 2009

TALK: 4:00 PM — SCIENCE CENTER, ROOM 309

RECEPTION: 5:15 PM — SCIENCE CENTER, 7TH FLOOR

“U-Estimation for Measurement Error Problems”

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ABSTRACT

Measurement error problems occur frequently, and even simple versions, like the deconvolution and errors-in-covariates problems, are infamous for challenges, especially when the data are complex or large, or from applications in which a simple parametric modeling is inadequate. A popular approach has been to deconvolve the measurement error to lead to deconvolution estimators, a.k.a. Fourier Estimators. However, these estimators may have slow convergence rates and be subject to some computational complexity, even when they are optimal in the traditional sense. In this talk, we advocate a paradigm change and propose a new approach, U-estimation. The idea starts from the case when the error is uniformly distributed. It then proceeds to the case when error is distributed as a linear combination of uniforms, hence approximating a large class of error distributions (including the normal distribution). The resulting estimators have faster convergence rates, are stable and easy to compute. There are no Fourier transformations needed.

(This is joint work with Xiaofeng Wang and Michael Woodroffe.)