

STATISTICS COLLOQUIUM

MONDAY, OCTOBER 15, 2007

TALK: 4:00 PM — SCIENCE CENTER RM. 309

RECEPTION: 5:15 PM — SCIENCE CENTER, RM. 302

“Approximation of the functional linear model using bivariate splines”

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ABSTRACT

We consider a functional linear regression model where the explanatory variable is a random surface and the response is a real random variable with noise. Bivariate splines, smooth piecewise polynomial functions over triangulations will be used to represent the random surfaces. We first use this representation to construct least squares estimators of the regression function with or without a penalization term. Under the assumptions that the regressors in the sample are bounded and span a large enough space of functions, bivariate splines approximation properties yield the consistency of the estimators. In addition, we generalize the spline approach of the functional linear model in [Cardot, Ferraty, and Sarda'03] to the bivariate setting. We simulate both approaches. Numerical results illustrate the quality of the asymptotic properties in various situations. The talk is based on a joint work with Serge Guillas at Georgia Institute of Technology.

More detail can be found at www.math.uga.edu/~mjlai/papers/laiAT12.pdf