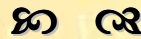




INSTITUT
de MATHÉMATIQUES
de TOULOUSE

COLLOQUIUM DE L'INSTITUT DE MATHÉMATIQUES DE TOULOUSE



Vendredi 25 mars 2011 – 14h00

Amphithéâtre L. Schwartz – Bât. 1R3 (UPS)

Andrea L. BERTOZZI

University of California

« *Mathematics of Crime* »

There is an extensive applied mathematics literature developed for problems in the biological and physical sciences. Our understanding of social sciences problems from a mathematical standpoint is less developed, but also presents some very interesting problems, especially for young researchers. This lecture uses crime as a case study for using applied mathematical techniques in a social science application and covers a variety of mathematical methods that are applicable to such problems. We will review recent work on agent based models, methods in linear and nonlinear partial differential equations, variational methods for inverse problems and statistical point process models. From an application standpoint, we will look at problems in residential burglaries and gang crimes.

Examples will consider both "bottom up" and "top down" approaches to understanding the mathematics of crime, and how the two approaches could converge to a unifying theory.