

STATISTICS COLLOQUIUM

MONDAY, DECEMBER 14, 2009

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

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

**Geometric Representations for Categorical Data Structures:
Something Old, Something New, Something Borrowed...**

**Stephen E. Fienberg
Department of Statistics
Machine Learning Department, Cylab, and iLab
Carnegie Mellon University**

ABSTRACT

For over 40 years, I have used geometry as a way to understand the structure of models for contingency tables and related categorical data structures. My original motivation in the 1960s came from the National Halothane Study and continues to come from problems involving large sparse structures. In this presentation, I will provide a bit of historical background linked to the Harvard Department of Statistics, and present guided tour of some of these ideas and the insights they offer, beginning with the geometry of 2x2 contingency tables and progressing through very recent results on algebraic geometry characterizations for latent class models and models for social networks.