Bayesian Methods for Variable Selection

Marina Vannucci
Rice University

In this talk I will address methods for Bayesian variable selection for high-dimensional data. I will start from the simple linear regression model and then extend methods to probit models for classification and to clustering settings. I will also consider models for survival data. I will show examples from genomics, in particular DNA microarray studies. The analysis of the high-dimensional data generated by such studies often challenges standard statistical methods. I will also assess performances on simulated data. Models and algorithms are quite flexible and allow us to incorporate additional information, such as data substructure and/or knowledge on gene functions.