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SPEAKER TITLES/ABSTRACT

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"Spatially Informed Variable Selection Priors and Applications to Large-scale Data"

There is now a huge literature on Bayesian methods for variable selection that use spike-and-slab priors. Such methods, in particular, have been quite successful for applications in a variety of different fields. High-throughput genomics and neuroimaging are two of such examples. There, novel methodological questions are being generated, requiring the integration of different concepts, methods, tools and data types. These have in particular motivated the development of variable selection priors that go beyond the independence assumptions of a simple Bernoulli prior on the variable inclusion indicators. In this talk I will describe various prior constructions that incorporate information about structural dependencies among the variables. I will also address extensions of the models to the analysis of count data. I will motivate the development of the models using specific applications from neuroimaging and from studies that use microbiome data.