# Bayesian Spatially Dynamic Variable Selection for Spatial Point Process

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**Abstract:** Poisson point process is widely used to study the relationship between occurrence of events in space and spatial covariates. Variable selection problem of spatial point process model with spatially varying coeffcients have not yet received much attention. The spike-slab prior has been universally used for Bayesian variable selection. To capture spatially varying variable selection uncertainty, we introduce a new spatially dynamic spike-slab prior for spatial point process model. Several theoretical results are examined in this paper. An efficient Markov chain Monte Carlo algorithm is developed for our proposed methods. Extensive simulation studies are carried out to show the effeteness of our proposed methods. The usefulness of our model is illustrated by an application in BCI data.