

## **Seminar Announcement**

**Speaker:** Prof. Anandamayee Majumdar

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**Date:** 2nd March, 2015 (Monday).

**Time:** 2:30pm -- 3:30pm.

**Title:** Bayesian Modeling of Skewed Spatial Distributions

**Abstract:** There is a need to model asymmetric or skewed spatial process with applications in finance, economics, hydrology and ecology. To this aim, we introduce new classes of stationary spatial processes with asymmetric, sub-Gaussian marginal distributions using the idea of expectiles. This is related to the concept of a Double Normal distribution and an Asymmetric Gaussian distribution. We derive theoretical properties of the proposed processes. Moreover, we use the proposed spatial processes to formulate a spatial regression model for point-referenced data where the spatially correlated errors have skewed marginal distribution. We introduce a Bayesian computational procedure for model fitting and inference for this class of spatial regression models. We compare the performance of the proposed method with the traditional Gaussian process-based spatial regression through simulation studies and by applying it to a data set on air pollution in California.

**Keywords:** Bayesian Modeling, Double Normal Process, Double Zero Expectile Normal Process, Posterior Inference, Skewed Normal Distribution, Spatial Process