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## ***SEMINAR***

# **"Bayesian Inference on Changes in Response Densities over Predictor Clusters"**

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**Room 15 - Via Sarfatti 25 - 20136 Milano**

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### **Abstract:**

In epidemiology, it is often of interest to assess how individuals with different trajectories over time in an environmental exposure or biomarker differ with respect to a continuous response. For ease in interpretation and presentation of results, epidemiologists typically categorize predictors prior to analysis. To extend this approach to time-varying predictors, one can cluster individuals by predictor trajectories, with the cluster index included as a predictor in a regression model for the response. We develop a semiparametric Bayes approach, which avoids assuming a pre-specified number of clusters and allows the response to vary nonparametrically over predictor clusters. This methodology is motivated by interest in relating trajectories in weight gain during pregnancy to the distribution of birth weight adjusted for gestational age at delivery. In this setting, the proposed approach allows the tails of the birth weight density to vary flexibly over weight gain clusters. This work is joint with David Dunson at Duke University and Anna Maria Siega-Riz at UNC.