

# ACMS Statistics Seminar

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**Tues, September 12**  
**154 Hurley Hall**  
**3:30– 4:30 PM**



## **Bayesian High-dimensional Semi-parameteric Inference Beyond sub-Gaussian Errors**

We consider a sparse linear regression model with unknown symmetric error under the high-dimensional setting. The true error distribution is assumed to belong to the locally  $\beta$ -Hölder class with exponentially decreasing tail, which does not need to be sub-Gaussian. We obtain posterior convergence rates of the regression coefficient and the unknown error distribution, which are nearly optimal and are adaptive to the sparsity and the unknown error distribution. Semi-parameteric Bernstein-von Mises (BvM) theorem and strong model selection consistency for the regression coefficient are also derived. To the best of our knowledge, our work is the first that has obtained posterior convergence rates and BvM theorem without the sub-Gaussian assumption.

The Department of Applied and Computational  
Mathematics and Statistics

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