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Zhigang Bao, Xiukai Ding and Ke Wang* (kewang@ust.hk), Department of Mathematics, HKUST, Clear Water Bay, Kowloon, 999077, Hong Kong. *Limiting distribution of outlier singular vectors of low-rank matrices with additive random noise.*

In this talk, we consider the matrix model $Y=S+X$ where S is a low-rank deterministic matrix, representing the signal, and X is a random noise. It is a central task in high dimensional data analysis to understand how the spectral properties of S are altered with a small random perturbation. We give a precise description of the limiting distribution of the angles between the outlier singular vectors of Y with their counterparts, the leading singular vectors of S . It turns out that the limiting distribution depends on the structure of S and the distribution of X , and thus is non-universal. This talk is based on a joint work with Zhigang Bao and Xiukai Ding. (Received August 14, 2018)