

**Stanford University**  
**Departments of Mathematics and Statistics**

PROBABILITY SEMINAR

4pm, Monday, October 14, 2019  
Sequoia Hall Room 200

Refreshments served at 3:30pm in the Lounge.

**Speaker:** Jun Yan, *Stanford Statistics*

**Title:** **Adapting to Unknown Noise Distribution in Matrix Denoising**

**Abstract:**

We consider the problem of estimating an unknown matrix  $X$  from observations  $Y = X + W$ , where  $W$  is a noise matrix with independent and identically distributed entries, as to minimize estimation error measured in operator norm. Assuming that the underlying signal  $X$  is low-rank and incoherent with respect to the canonical basis, we prove an formula for the minimax risk, which is a function of the Fisher information of the noise distribution. We also develop an efficient procedure that achieves this risk, adaptively over the noise distribution.