

---

**TODD KEMP**, UC San Diego

*Partitioned Matrices with Correlations*

There is a vast literature on "band matrices" which are symmetric random matrices with independent but not necessarily identically-distributed entries. Recently, I have been studying models where independence is also abandoned.

I will present two kinds of results. First, in joint work with D. Zimmermann, we show that if the matrix entries are partitioned into independent blocks, and if the blocks are not too big, then the empirical spectral distribution still concentrates on its mean as the dimension grows. Second, I will discuss recent and ongoing work with undergraduate research students on several partitioned matrix models whose blocks grow with dimension, where the empirical spectral distribution has a limit which can be computed, using the tools of operator-valued free probability, and other combinatorial and analytic means.