1106-60-1199 **Joel A. Tropp*** (jtropp@cms.caltech.edu), 1200 E. California Blvd., MC 305-16, Pasadena, CA 91125. *Concentration inequalities for random matrices.*

Random matrices now play a role in many areas of theoretical, applied, and computational mathematics. In contemporary problems, however, it is common to encounter random matrices that do not submit to classic methods. Over the last fifteen years, researchers have developed a new set of user-friendly tools, called *matrix concentration inequalities*, that can provide valuable information about modern random matrices.

This talk offers an invitation to the field of matrix concentration inequalities that is aimed at students and researchers in other areas. The presentation begins with an introduction to random matrix theory and the fundamental probability inequalities for scalar random variables. It describes a flexible model for random matrices that is suitable for many applications, and it summarizes the basic matrix concentration inequalities. It concludes with examples drawn from algorithms and combinatorics, statistics and signal processing, scientific computing, and beyond.

This presentation accompanies the SIAM Mini-Symposium on Matrix Concentration Inequalities. This session includes six prominent young researchers who have used matrix concentration tools in their work. Their talks explore other problems you can address with these methods. (Received September 15, 2014)