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**Ioana Dumitriu\*** (dumitriu@uw.edu), University of Washington, Department of Mathematics, BOX 354350, Seattle, WA 98195, and **James Demmel, Olga Holtz, Grey Ballard** and **Chris Melgaard**. *Randomize to optimize: a brief excursion in the uses of randomness in numerical linear algebra algorithms.*

Numerical algorithms strive to be faster, more accurate, parallelizable, communication-optimizing, sparse, dimension-reducing, and so on. More and more often these days, such desirable outcomes are obtained by the introduction of a little randomization. While it may be fathomable that such randomization yields fast results, it is perhaps less intuitive that sometimes it gives outcome guarantees that non-randomized versions of the same algorithm cannot produce. I will describe a few algorithms in which randomization has been of utmost importance, and present a randomized rank-revealing factorization which has a lot of the properties I mentioned above. (Received September 16, 2014)