

Matrix Computations and Scientific Computing Seminar

Organizer: Jim Demmel and Ming Gu

Wednesday, 12:00–1:00 pm, 380 Soda Hall

Dec 9 **Jianwei Xiao**, UC Berkeley

Spectrum Revealing Cholesky factorizations

LAPACK subroutine DPSTRF can be used to compute a partial Cholesky factorization of real symmetric positive semidefinite matrix, therefore provides a low rank approximation, which can be used in many areas such as data analysis and quantum chemistry. By employing randomized sampling to choose blocks of diagonal pivots, we are able to design a block left looking pivoted Cholesky, which is more efficient than DPSTRF and can provide better low rank approximation. We also provide an efficient swap strategy that can make partial Cholesky factorization spectrum revealing.