
Laura Grigori
**Low rank approximation of a sparse matrix based on Low
rank approximation of a sparse matrix based on LU
factorization with column and row tournament pivoting**

735 Gooding Way
Albany
CA
`laura.grigori@inria.fr`
James Demmel
Sebastien Cayrols

In this paper we present an algorithm for computing a low rank approximation of a sparse matrix based on a truncated LU factorization with column and row permutations. We present various approaches for determining the column and row permutations that show a trade-off between speed versus deterministic/probabilistic accuracy. We show that if the permutations are chosen by using tournament pivoting based on QR factorization, then the obtained truncated LU factorization with column/row tournament pivoting, $LU_C RTP$, *satisfies bounds on the singular values which*