

TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Wednesday, 22 March 2017, 4:00 p.m.
Room 617 Wachman Hall

(refreshments and social at 3:45 p.m)

Fast Code for Sparse Solvers

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Abstract. Computational scientists often encounter problems requiring the solution to large sparse systems. To enable fast and accurate simulations, the execution time of these solvers needs to be accelerated on modern high-performance architectures. In this talk, I will show that through mathematical reformulation and algorithm re-engineering, memory access patterns in iterative sparse solvers can be restructured to significantly improve their performance on parallel architectures. I will also discuss our recent advances in building domain-specific compilers for sparse matrix computations to automatically generate fast code for sparse numerical methods.