

TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Wednesday, 26 Sept 2012, **special time** 3:45 p.m.
Room 617 Wachman Hall

(refreshments and social at 3:30 p.m)

MPGMRES: a generalized minimum residual method with multiple preconditioners

by Daniel Szyld
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Abstract. Standard Krylov subspace methods only allow the user to choose a single preconditioner, although in many situations there may be a number of possibilities. Here we describe an extension of GMRES that allows the use of more than one preconditioner. We make some theoretical observations, propose a practical algorithm, and present numerical results from problems in domain decomposition and PDE-constrained optimization. Our results illustrate the applicability and potential of the proposed approach.