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Zhen Chao* (chaozhen@uwm.edu), 2616 N Frederick Ave, APT 125, Milwaukee, WI 53211, and
Dexuan Xie and **Ahmed H. Sameh**. *Preconditioners for nonsymmetric indefinite linear systems.*

In this talk, we present algorithms for solving nonsymmetric indefinite linear systems by considering the augmented linear systems resulting from a weighted linear least squares problem. Even though the augmented system is more ill-conditioned than the original linear system, one can construct preconditioned GMRES methods for solving these augmented systems capable of obtaining reasonable approximation of the solution in fewer iterations than the classical ILU preconditioned GMRES method for solving the original linear system. More specifically, we present two different preconditioners for these augmented systems, examine the spectral properties of these preconditioned augmented systems, and report numerical results to illustrate the effectiveness of these preconditioners. (Received September 11, 2019)