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**José C Garay, Frédéric Magoulés and Daniel B Szyld\*** (szyld@temple.edu), Department of Mathematics, 1805 N Broad St, Philadelphia, PA 19122. *Asynchronous Optimized Schwarz for the solution of PDEs.*

Asynchronous methods refer to parallel iterative procedures where each process performs its task without waiting for other processes to be completed, i.e., with whatever information it has locally available and with no synchronizations with other processes. In this talk, an asynchronous version of the optimized Schwarz method is presented for the solution of differential equations on a parallel computational environment. Convergence is proved under very mild conditions on the size of the subdomains, when approximate (non-optimal) interface conditions are utilized for Poisson's equation on the plane. A different result for bounded rectangular domains is also shown. Numerical results are presented on large three-dimensional problems illustrating the efficiency of the proposed asynchronous parallel implementation of the method. (Received September 22, 2017)