

TEMPLE UNIVERSITY  
Department of Mathematics

# Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

Wednesday, 2 October 2019, 4:00 p.m.

## On Coarse Grid Corrections for the Algebraic Optimized Schwarz Method for Asynchronous Computations

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**Abstract.** Current computational problems require the use of computer architecture with an increasing number of cores. This makes asynchronous communication more favorable than its synchronous variant since it avoids waiting for the idle time, i.e., time for which some processors are not being used but could be. We explore here such iterations for the Optimized Schwarz Method for the solution of large sparse linear systems arising from the discretization of PDEs. In particular, we treat the one and two-level cases. The latter is required to ensure weak scaling. Moreover, a particular coarse grid should be considered in order to ensure the convergence of the two-level method iteratively, and hence be more suitable in the asynchronous framework. Some numerical experiments are also presented.

(Joint work with Daniel B. Szyld)