

Title: Analysis of a Three-Level Variant of Parareal

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Abstract: In this talk, we present a three-level variant of the parareal algorithm that uses three propagators at the fine, intermediate and coarsest levels. The fine and intermediate levels can both be run in parallel; only the coarsest level propagation is completely sequential. We interpret our algorithm as a variant of three-level MGRIT, and we present a convergence analysis that uses parareal-type assumptions, i.e., those that involve Lipschitz constants on the propagators. We present numerical experiments to illustrate how sharp the estimates are for various time dependent problems.