1048-65-158 **Michael L Minion*** (minion@email.unc.edu), Dept. of Mathematics, CB 3250 Phillips Hall, University of North Carolina, Chapel Hill, NC 27599. *The parareal algorithm and spectral deferred corrections.*

The efficient parallelization of numerical methods for ordinary or partial differential equations in the temporal direction is an intriguing possibility that has of yet not been fully realized despite decades of investigation. For partial differential equations, virtually all large scale computations now employ parallelization across space, and there are freely available computational tools and libraries to aid in the development of spatially parallelized codes. Conversely, parallelization in the temporal direction is rarely even considered. I will discuss a relatively recent parallel strategy called the parareal algorithm that has generated a renewed wave of interest in time parallelization. I will show how the iterative structure of the parareal algorithm can be interpreted as a particular form of deferred corrections and then present a modified parareal strategy based on spectral deferred corrections that can significantly reduce the computational cost of the method. Finally I will make some observations as to why parallel in time methods may be attractive in the future. (Received February 05, 2009)