On the Origins of Domain Decomposition Methods

Martin J. Gander[1]

Domain decomposition methods have been developed in various contexts, and with very different goals in mind. I will start my presentation with the historical inventions of the Schwarz method, the Schur methods and Waveform Relaxation. I will show for a simple model problem how all these domain decomposition methods function, give precise results for the model problem, and also explain the most general convergence results available currently for these methods. I will conclude with the parareal algorithm as a new variant for parallelization of evolution problems in the time direction.

[1] University of Geneva, Section of Mathematics,
Martin.Gander@unige.ch