

Analyse numérique

Mercredi 28 avril 2010 – Salle MAA112 – 16.15 h.

Prof. Sebastien **LOISEL** (Université de Genève) donnera un séminaire¹ intitulé :

***“ Condition number estimates for the nonoverlapping
optimized Schwarz method and the 2-Lagrange multiplier
method for general domains and cross points ”***

Abstract

The optimized Schwarz method and the closely related 2-Lagrange multiplier method are domain decomposition methods which can be used to parallelize the solution of partial differential equations. Although these methods are known to work well in special cases (e.g., when the domain is a square and the two subdomains are rectangles), the problem has never been systematically stated nor analyzed for general domains with general subdomains. The problem of cross points (when three or more subdomains meet at a single vertex) has been particularly vexing. We introduce a 2-Lagrange multiplier method for domain decompositions with cross points, and describe its relationship with the nonoverlapping optimized Schwarz method. We estimate the condition number of the iteration and provide an optimized Robin parameter for general domains. We hope that this new systematic theory will allow broader utilization of optimized Schwarz and 2-Lagrange multiplier preconditioners.

Lausanne, le 22 avril 2010/AQ/aa

1. Les séminaires qui ont lieu à la Section de Mathématiques sont annoncés sur Internet à l'adresse <http://www.epfl.ch/cgi-bin/memento/memento>.