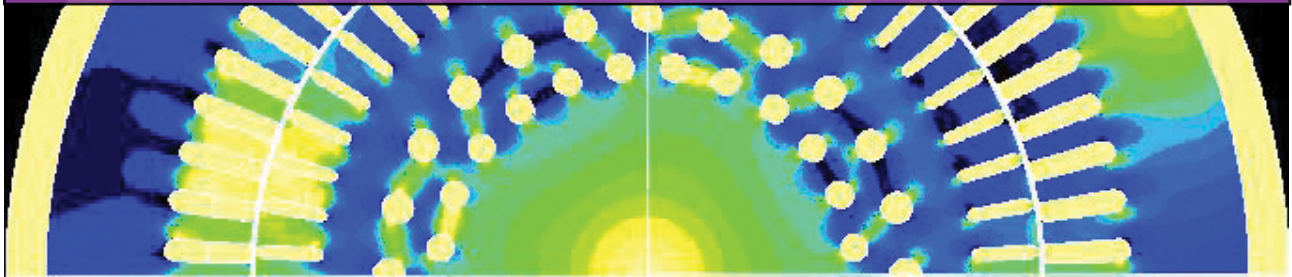# First Latin American SCAT Summer School

Universidad Técnica Federico Santa María, Valparaíso

Schwarz methods for Partial Differential Equations

One of a series of mini-courses taking place 6-12 January 2007

Description

Domain Decomposition Methods for Partial Differential Equations have become topics of intense interest in research over the past years because they not only provide effective computing strategies suitable for high performance computing but can provide an elegant and complete analysis of the algorithms. In these lectures, I will focus on the mathematical foundation of domain decomposition concentrating our effort on a study of lower order finite element approximation of Poisson's equation. The goal is to provide the basics of the theory in order to demonstrate what mathematical tools are required and what can be done and to test the methods using Matlab.

The course will cover:

- ▸ Basics in Finite Elements
- ▸ Basics in Krylov-Type Methods
- ▸ Domain Decomposition Methods
- ▸ Overlapping Schwarz Method
- ▸ Schur Complement-type Methods

Lecturer:

Dr Marcus Sarkis, Instituto de Matematica Pura e Aplicada
Rio de Janeiro, Brazil

This course will be in English.

For more information, email info@scat-alfa.eu or visit www.scat-alfa.eu

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