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On the approximation of multiphysics problems

CONTIDO

Multiphysics problems considered in this lecture series are those that can be described by mathematical models relying on different kind of partial differential equations. As a guiding principle, the numerical approximation of partial differential equations governing these problems can take advantage of domain decomposition (DD) methods. In the first part of this presentation we will introduce a general mathematical setting for DD, discuss DD preconditioners, and illustrate their role and efficiency for parallel computing. In the second part, we will address numerical strategies for complexity reduction in multiphysics problems. These strategies can be based on the attempt of simplifying the original mathematical model, devising novel numerical approximation methods, developing efficient parallel algorithms that exploit the dimensional reduction paradigm. After introducing some illustrative examples, several approaches will be proposed and a few representative applications to medicine, sports design, and the environment will be addressed.

Inscripción: É gratuita. De cara á xestión loxística, se agradecería a inscrición antes do 12 de xullo (elisa.eiroa@usc.es)

Créditos: Un crédito no programa de doutoramento “Métodos Matemáticos e Simulación Numérica na Enxeñaría e Ciencias Aplicadas”.

PFID: Este curso forma parte da oferta do Plan de Formación e Innovación Docente.

Data	17 ao 19 de xullo de 2013
Lugar	Retransmitírase por videoconferencia desde a USC (Aula Seminario 5), UDC (Seminario 2.1) e Uvigo (Laboratorio LD07). Tamén por Adobe Connect.
Horario	9:00 – 11:00