8th. World Congress on Computational Mechanics (WCCM8)
5th European Congress on Computational Methods in Applied Sciences and Engineeering (ECCOMAS 2008)
June 30 –July 5, 2008
Venice, Italy

Substructuring Preconditioners for Mortar Discretization of a Degenerate Evolution Problem

M. Pennacchio[1] **and *V. Simoncini**[2]

[1] IMATI-CNR
via Ferrata 1
Pavia
micol@imati.cnr.it

[2] Dipartimento di Matematica
Università di Bologna
Piazza di Porta S. Donato 5
Bologna
valeria@dm.unibo.it

Key Words: *Preconditioners, mortar discretization, degenerate parabolic problems.*

ABSTRACT

In this talk we report on new efficient variants of structured preconditioners for algebraic linear systems arising from the mortar discretization of a *degenerate* parabolic system of equations. The new approaches extend and adapt the idea of substructuring preconditioners to the discretization of a degenerate problem in electrocardiology. A polylogarithmic bound for the condition number of the preconditioned matrix is proved. The theoretical results are illustrated by reporting on our numerical experience.

This talk is based on the manuscript [1].

E-mail: *valeria@dm.unibo.it*

REFERENCES

[1] M. Pennacchio and V. Simoncini, “Substructuring Preconditioners for Mortar Discretization of a Degenerate Evolution Problem”, *Tech. Rep. IMATI-CNR* n.18/06, June 2006, pp.1-26.