

PROJECT LEADERS

AW Heemink

RESEARCH THEME

Mathematical and computational methods for fluid flow analysis

PARTICIPANTS

HX Lin, SM Xu

COOPERATIONS

Tsinghua University, China, UNL
Lisbon, Portugal, GUCAS, China

FUNDED

EU, Nuffic

1st 50% 2nd - 3rd 50%

START OF THE PROJECT

2005

INFORMATION

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PROJECT AIM

The research aims to set up a general framework for the design and implementation of high performance and parallel algorithms for sparse matrix computations. The applicability and limitations of the grid computing technology will also be investigated.

PROGRESS

In the project financed by the EU on the application of Grid Computing, the research focuses on power flow simulation of large electrical power systems. Work on multi-level preconditioning methods and Jacobian-free preconditioned Krylov type methods are currently under study for power flow analysis.

DISSERTATIONS

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SCIENTIFIC PUBLICATIONS

1. W.M. Charles, E. van den Berg, H.X. Lin, A.W. Heemink, M. Verlaan, "Parallel and distributed simulation of sediment dynamics in shallow water using particle decomposition approach", Journal of Parallel and Distributed Computing, Vol.68, No.6, 2008, pp 717-728.
2. S.Xu, H.X. Lin, K. Wang, W. Xue, "Fill-in Guided Multilevel Preconditioner for Time-Domain Simulation of Large-Scale Power Systems", Proc. Of Int'l Symp. On Appl. Computing and Computational Sciences (ACCS'08), Yu et al (eds.), pp. 114-122, Aug. 2008.