

**Fifth M.I.T. Conference on Computational Fluid and Solid Mechanics—  
Focus: Advances in CFD**

June 17 - 19, 2009

Massachusetts Institute of Technology, Cambridge, MA 02139, U.S.A.

*Minisymposium on Recent Advances in Decomposition Methods for  
Computational Fluid Mechanics: Theory and Applications*

**Organizers:**

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**Abstract:**

In recent years, decomposition methods have become increasingly important to the numerical solution of time-dependent partial differential equations. The strategies are particularly effective in solving large-scale and multidimensional problems associated with physical conservation or computational acceleration issues in fluid dynamics. This minisymposium aims at the latest research developments and results in the field, including the theory and practice of advanced split schemes with high accuracy, efficiency and effectiveness in applications. Novel decomposition concepts and ideas in space and time will be discussed for further CFD applications.

Numerous new decomposition strategies have been implemented and utilized since the pioneer work on classical splitting schemes including the ADI, LOD and Exponential Splitting. It is the time to evaluate and promote the many novel methods for our future endeavors. New CFD challenges, including shock waves, blow-up and nonlinear singularities, will be discussed in this minisymposium. We will exchange the latest ideas, show the latest results, and promote collaborations.

This minisymposium calls for papers reflecting the aforementioned research trends including, but not limited to:

1. *decomposition for higher efficiency and accuracy;*
2. *decomposition for nonlinear CFD problems;*
3. *stability and convergence of decomposition methods;*
4. *iterative and adaptive splitting methods;*
5. *decomposition methods in parallel computations;*
6. *a priori and a posteriori error-estimates of decomposition methods.*

We would like to welcome all potential speakers to our minisymposium at MIT! Let us discuss many cutting-edge issues, and together, promote the exciting study to a new higher level! Please submit a title and abstract to either Professors Geiser or Sheng via email as soon as possible but not later than April 30, 2008. A sample title/abstract file can be downloaded at <http://web.mit.edu/fergroup/www/5AbstractInstructions.pdf>. The accepted papers should

be submitted prior or on May 31, 2008 to the Computers & Structures web site, <http://ees.elsevier.com/cas/>. For more information please visit the organizers' URLs listed above.