EDITORIAL

Preface

Special edition, Trends in unstructured mesh generation VII

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This collection of papers represents selected works from the 7th Symposium on Trends in Unstructured Mesh Generation. This Symposium was held as part of the US National Congress in Computational Mechanics in July 2009 in Columbus, Ohio. Automatic Mesh Generation is the common tool that binds much of the computational simulation world together. Increasingly more complex and impressive simulations continue to press the need for domain discretization tools that can fulfill their ambitious requirements. These papers are a good representation of some of the current research specifically related to topics in automatic unstructured mesh generation.

This edition begins with the work of Quadros and Owen where they address characterization of a geometric domain from CAD to facilitate meshing. We follow with the work of Pereira where an innovative method for meshing incorporates Boolean operations between premeshed domains. Hexahedra continue to be the element of choice for many simulation applications, but can present interesting geometric challenges. The papers from Kowalski et al. and Ran et al. both address aspects of this difficult topic. Next, the paper from Sastry and Shontz evaluates mesh optimization methods and their performance characteristics. Finally, the paper from Zhou et al. provides a narrative of current adaptive meshing tools for massively parallel applications.

These papers provide just a sample of the current research and development in the field of automatic mesh generation. Annual and bi-annual conferences such as the International Meshing Roundtable and the Symposium on Trends in Unstructured Mesh Generation continue to be outstanding forums for dissemination of new ideas and technology in this technical field.

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