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Optimization of fluid solid coupling solvers

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ABSTRACT

The dynamic interaction between flow and structure plays a very important role in the design of many engineering and mechanical systems. Therefore it requires a high level of accuracy for model predictive capabilities.

The proposed Mini-Symposium aims to provide a forum for engineers, applied mathematicians and computational scientists to discuss the current progress and latest achievements in the field of advanced numerical methods for solving problems involving fluid structure interaction. The focus will be on new methods and improved algorithms involved in solvers for modeling interesting applications dealing with industrial and academic problems. Sessions should cover issues like metrics, time marching as well as challenge to real scale. Moving grid, space-time, non-moving-grid methods and other methods involving moving boundaries and interfaces like level-set methods should be discussed. Direct, iterative or hybrid solvers for fully-coupled fluid solid computation, improvements for partitioned solution as well as monolithic methods for complete flow and structure system integration will also be welcome. For scale coupling reduced order modeling methods and homogenization strategies can be mentioned in the context of various areas of engineering and applied sciences, including biomechanics, aerodynamics, mechanical engineering and civil engineering.

Two Keynote Lecturers will be proposed.

REFERENCES

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