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Abstract

Partitioned procedures and staggered algorithms are often adopted for the solution of coupled fluid/structure interaction problems in the time domain. In this paper, we overview two sequential and parallel partitioned procedures that are popular in computational nonlinear aeroelasticity, and address their limitation in terms of accuracy and numerical stability. We propose two alternative serial and parallel staggered algorithms for the solution of coupled transient aeroelastic problems, and demonstrate their superior accuracy and computational efficiency with the flutter analysis of the AGARD Wing 445.6. We contrast our results with those computed by other

investigators and validate them with experimental data.



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