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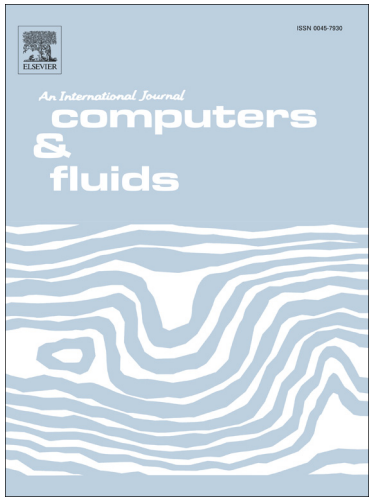

Numerical Methodology for the Assessment of Relative and Absolute Deterministic Flow Structures in the Analysis of Impeller-Tongue Interactions for Centrifugal Fans

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Numerical Methodology for the Assessment of Relative and Absolute Deterministic Flow Structures in the Analysis of Impeller-Tongue Interactions for Centrifugal Fans

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ABSTRACT

In this paper a numerical methodology to segregate relative and absolute flow structures, allowing a deep analysis of the impeller-tongue interaction in centrifugal fans, is presented. The procedure, based on a deterministic decomposition of the internal flow fields, is applied for the first time in blade-to-blade planes of radial turbomachinery. Previous numerical results, obtained with a viscous 3D unsteady solver, already validated by the authors and available in the literature, are used as a database for the numerical routines. Interpolation and relocating operations of the velocity fields between CFD meshes and post-processing grids are presented and performed for

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