

A NEW MLS-BASED HIGH-ORDER-PRESERVING SLIDING-MESH TECHNIQUE

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The sliding mesh approach is widely used in numerical simulation of turbomachinery flows to take in account the rotor/stator or rotor/rotor interaction. This technique allows relative sliding of one grid adjacent to another grid (static or in motion). However, when a high-order method is used, the interpolation used in the sliding mesh model needs to be of, at least, the same order than the numerical scheme, in order to prevent loss of accuracy.

In this work we present a sliding mesh model based on the use of Moving Least Squares (MLS) approximants. It is used with a high-order (>2) finite volume method that computes the derivatives of the Taylor reconstruction inside each control volume using MLS approximants. Thus, this new sliding mesh model fits naturally in a high-order MLS-based finite volume framework [1,2] for the computation of acoustic wave propagation into turbomachinery.

REFERENCES

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