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ADVANCES IN HIGH-ORDER METHODS FOR COMPUTATIONAL FLUID DYNAMICS TRACK NUMBER 200

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ABSTRACT

The proposed minisymposium will cover both the theory and application of high-order methods, with specific focus on their use in the field of computational fluid dynamics. Numerical schemes falling within the remit of the minisymposium include (but are not limited to) finite volume (FV) type essentially non-oscillatory (ENO) methods, FV type weighed ENO methods, k-exact methods, high-order continuous/discontinuous Galerkin finite element (FE) methods, spectral difference methods and spectral volume methods. We would particularly encourage presentations that address current issues inhibiting the adoption of unstructured high-order schemes amongst a wider scientific community and industry. These issues include a lack of efficient time integration schemes (that can be used with high-order spatial discretizations), a lack of accurate and robust shock capturing algorithms, and the difficulties associated with generating high-order curved element meshes. Furthermore, in the context of high-fidelity scale-resolving simulations (LES/DNS), we would welcome presentations that address the issue of visualisation and post-processing of large amounts of data; for instance, in-situ visualization techniques and methods for automatic extraction of relevant flow features.

REFERENCES

[1] P. E. Vincent and A. Jameson. Facilitating the Adoption of Unstructured High-Order Methods Amongst a Wider Community of Fluid Dynamicists. Math. Model. Nat. Phenom., Vol. 6, No. 3, pp. 97-140, 2011.