

RESUMO N° 316

A HIGHER-ORDER COLLOCATED FINITE VOLUME METHOD FOR THE RESOLUTION OF THE INCOMPRESSIBLE NAVIER STOKES ON UNSTRUCTURED GRIDS

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Keywords: High-Order Methods, Incompressible Flow, Moving Least Squares, Momentum Interpolation Method, Unstructured Grids, Collocated Grids

In this work we present a new higher-order (>2) accurate finite volume method for the resolution of the incompressible Navier-Stokes equations on unstructured grids. This new methodology is based on the use of Moving Least Squares (MLS) approximants. With this method, third and fourth order accurate discretizations of the convective and viscous fluxes are obtained on collocated meshes by using a deferred correction approach. In addition, MLS is employed to design a new Momentum Interpolation Method that allows interpolations better than linear on any kind of mesh. The accuracy of the new method is evaluated by several steady and unsteady test cases.

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