

Subject: ARIA Newsletter - Edition January/February 2024

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ARIA Newsletter

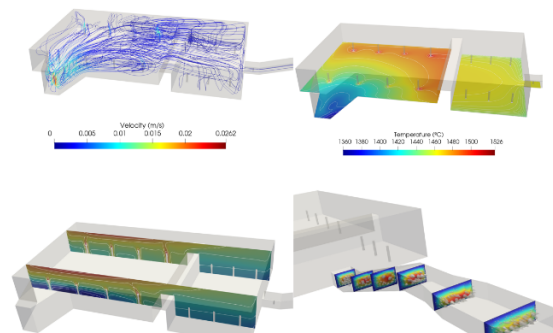
Edition January/February 2024

*We are pleased to share with you this new edition of the ARIA Newsletter.
Thank you all contributors and we hope you enjoy the reading !*

ROM applied to industrial problems

By Enrique Delgado Avila (Seville University)

The purpose of this secondment was to start having a first contact with ESTECO and to try to think of possible future collaborations with them within the framework of the ARIA project. Also, since SISSA is also located in Trieste, taking advantage of continuing the work previously initiated with them in the framework of ARIA project.



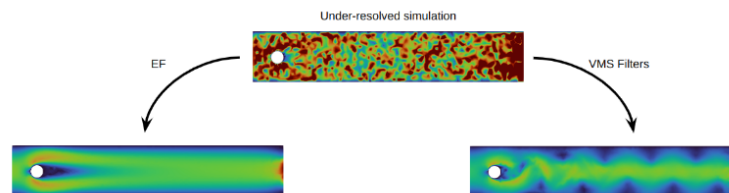


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Full and Reduced Variational Multiscale Evolve and Filter approach for convection-dominated Navier-Stokes equations

By Maria Strazzullo (Polito)

Addressing convection-dominated flows is a crucial task, with multiple applications in diverse fields, both in industry and science. However, under under-resolved regimes, numerical oscillations may arise, spoiling the accuracy of the numerical simulations.



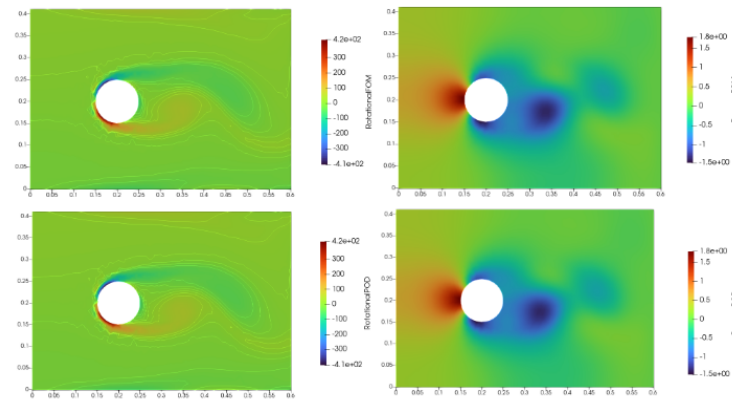
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Time Split ROM

By Samuele Rubino (Seville University)

The aim of this secondment was to numerically test in the framework of POD (Proper Orthogonal Descomposition)-ROMs (Reduced Order Models) an efficient time-splitting approximation of the Navier-Stokes equations with open

boundary conditions already performed for Finite Volume FOMs (Full Order Models)

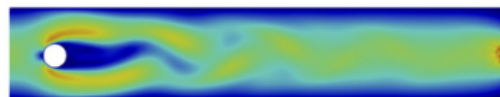


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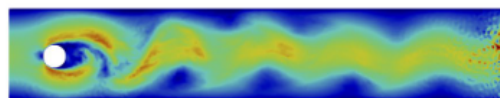
Optimized evolve-filter-relax regularization algorithms for convection-dominated flows

By Anna Ivagnes (SISSA)

Finite Element (FE) simulations are often characterized by spurious oscillations and poor accuracy when dealing with convection-dominated flows and coarse mesh resolutions. When these phenomena manifest, numerical stabilization techniques turn out to be useful to alleviate the spurious oscillations and improve the results of Full Order Model (FOM) simulations.



EF ($\delta_{Kolmogorov}$) (t=4 s)



EF ($\delta(t)$ optimized) (t=4 s)

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Other secondments

For other secondments implemented in the project, they are available on the project's website.

ARIA News & Event



ARIA Project Team

This email was sent by linh.nguyen@inria.fr
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