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Laboratoire PMMH
10 rue Vauquelin, 75231 Paris Cedex 05



Séminaire PMMH

Bureau d'Études, Bâtiment L, 2^{ème} étage

Vendredi 2 décembre 2016, 11h00-12h00

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Adaptive numerical methods for fluid mechanics

The equations of fluid mechanics can be used to describe natural processes over a wide range of scales, from the behaviour of micro-organisms to astrophysics. Each of these processes is in turn often controlled by internal interactions on widely different scales. Numerical methods able to efficiently resolve these interactions are - in combination with theoretical analysis and lab experiments - an essential tool for advancing our understanding. I will give a general overview of the hierarchical numerical methods I have worked on, as implemented within the free software Gerris Flow Solver (<http://gfs.sf.net>) and Basilisk (<http://basilisk.fr>) and discuss a range of applications including microscale high-energy droplet dynamics, multiphase and complex flows and tsunamis.