

Preface

This volume gathers contributions presented during the European Workshop on High Order Nonlinear Numerical Methods for Evolutionary PDEs (HONOM 2013) that took place at INRIA Bordeaux Sud-Ouest, Talence, France, from March 18 to 22, 2013. As the title indicates, the theme of this conference was high order methods for evolutionary problems, such as in fluid mechanics, magneto-hydrodynamics, nonlinear solid mechanics and other settings for which genuinely nonlinear methods are needed. Greater emphasis is placed on the numerical than the theoretical aspects of this scientific field: algorithm design, accuracy, large scale computing, complex geometries, and so on.

The 2013 conference was the fifth in the HONOM series. The first was held in Trento, Italy, in 2005, inspired by an idea of Tito Toro, Michael Dumbser and Claus-Dieter Munz. Since then, HONOM has convened every 2 years in Trento, except in 2013 when it was held in Talence near Bordeaux. These conferences, organized under the auspices of the European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS), are built on two principles. First they are free to participants, second there is only one session. Free admission is intended to attract as many young participants as possible, and having only one session helps to facilitate the sharing of ideas.

HONOM 2013 featured eight plenary lectures on topics like meshing issue, fractional temporal derivatives for wave propagation, high order schemes, multiphase flows and Vlasov equations. The talks were given by S. Karni (U. of Michigan at Ann Arbor, Michigan, USA), M. Feistauer (Charles University, Prague), J. F. Remacle (Université Catholique de Louvain, Belgium), J. L. Guermond (Texas A&M, College Station, Texas, USA), A. Iske (University of Hamburg, Germany), D. Kopriva (Florida State U., Florida, USA), R. Saurel (Université d'Aix-Marseille, Marseille, France) and E. Sonnendrücker (Max Planck Institute, Garching, Germany). The conference featured some 50 speakers. More than 70 participants attended the sessions among whom only a small fraction came from France.

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The next HONOM conference will be held in Trento, Italy, from March 16 to 20, 2015.

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