Background

This is the VII edition of HONOM conference. The previous ones were held in Trento (2007, 2009, 2011, 2015), Bordeaux (2013) and Stuttgart (2017). Mathematical modeling, based on Partial Differential Equations (PDEs) and numerical simulation are fundamental tools in the context of problems arising in engineering, physics, biology or medicine among many others, from the point of view of computational efficency and accuracy of the results obtained. In the field of CFD, finite volume and discontinuous Galerkin methods are commonly used. In order to achieve high order of accuracy in space, high order reconstruction methods were firstly introduced in the 80s, namely Essentially Non Oscillatory (ENO) schemes. Later on Weighted ENO (WENO) techniques and Central WENO (CWENO) methods were developed. Total Variation Diminishing (TVD) schemes allow to obtain well-established second order schemes. However, this TVD property is also used in Runge-Kutta schemes to get higher order of accuracy, such as the third order RK-TVD scheme which is widely used. More recently ADER approach, in the context of Riemann problems, was introduced which allows to obtain arbitrary order of accuracy. A step forward in ADER schemes are the so called Local Space-Time DG which allow to apply ADER method to problems with stiff source terms.

Topics of the conference

High order finite difference and finite volume numerical schemes; DG methods; design of algorithms; adaptive mesh refinement; ENO, WENO and CWENO reconstruction, finite element methods, time stepping.

Organizing Committee

Eleuterio F. Toro, University of Trento, Italy.
Remi Abgral, University of Zurich, Switzerland.
Michael Dumbser, University of Trento, Italy.
Claus-Dieter Munz, University of Stuttgart, Germany.

Local Organizing Committee

Arturo Hidalgo (Chairman).
Carlos Conde.
Francisco Javier Elorza.
Alfredo López.
José Luis Parra.
Lourdes Tello.

Invited speakers

Jan Hesthaven (Lausanne, Switzerland)
Raphael Loubère (Bordeaux, France)
Pep Mulet (Valencia, Spain)
Ilya Peshkov (Toulouse, France)
Gabriella Puppo (Varese, Italy)
Vladimir Titarev (Moscow, Russia)
Svetlana Tokareva (Los Alamos, USA)
Maria Elena Vázquez-Cendón (Santiago de Compostela, Spain)
Helen Yee (NASA Ames Research Center)

Lo

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE MINAS Y ENERGÍA

POLITÉCNICA

CCS Center for Computational Simulation

Sponsors

ExaHyPE An Exascale Hyperbolic PDE Engine

I·Math Institute of Mathematics

University of Zurich[UZH]

SFB-TRR 75 Tropfendynamische Prozesse unter extremen Umgebungsbedingungen

HONOM 2019 is an

ECCOMAS Thematic Conference