Universität Stuttgart
Institut für Aerodynamik
und Gasdynamik
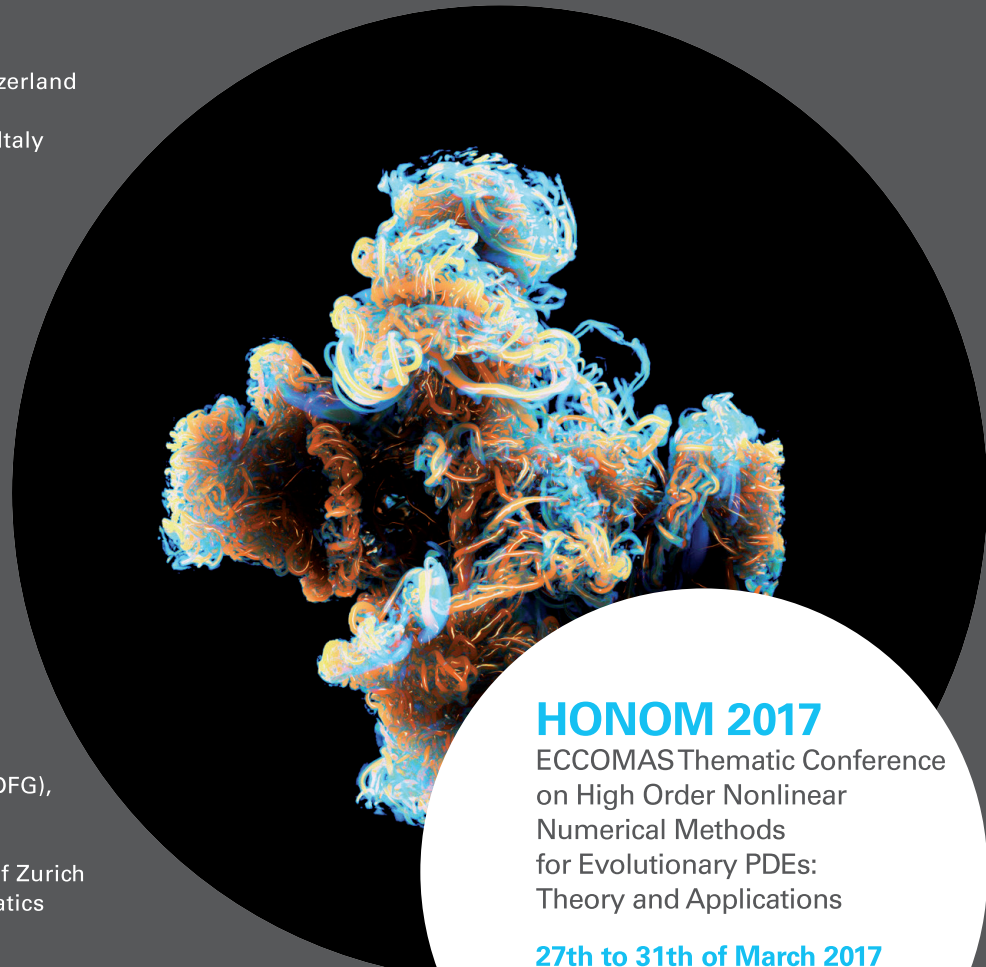
ECCOMAS
Thematic Conference

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HONOM 2017

ECCOMAS Thematic Conference
on High Order Nonlinear
Numerical Methods
for Evolutionary PDEs:
Theory and Applications

27th to 31th of March 2017
University of Stuttgart,
Germany

SimTech
Cluster of Excellence

erc

DFG Deutsche
Forschungsgemeinschaft

ECCOMAS

IAG

University of Zurich UZH

uzh | eth | zürich
Zurich Graduate School
in Mathematics

BACKGROUND

A wide variety of processes in science and engineering can be represented by evolutionary Partial Differential Equations (PDEs) which, for realistic situations, must be solved numerically. The most efficient way to compute accurate solutions is by applying high-order numerical methods, as opposed to using low-order methods on very fine meshes. The need for high-order methods is most evident in acoustics, when attempting to evolve weak signals for long distances and for long times, and in turbulence, when attempting to capture small structures on relatively coarse grids. Significant advances have been made in the last two decades on the construction of conservative schemes of high order of accuracy in both space and time. These advances were pioneered by the family of TVD (Total Variation Diminishing) methods, by now a well-established approach that produces relatively simple and practical second-order schemes. To go beyond second-order, a high degree of sophistication is required. There are at present several approaches that, at least partially, fulfil some of the basic requirements. Examples include the ENO method and its variant the WENO method, discontinuous Galerkin Finite Element methods, spectral difference methods and the ADER approach.

ABOUT STUTTGART

Art and culture, shopping and sports, entertainment and traditional Swabian cuisine – the city of Stuttgart, with its charming position amidst forests and vineyards, the Swabian Mountains and the Black Forest, and with its attractive leisure activities and broad range of cultural events, caters to all tastes. One of the highlights in Stuttgart's cultural life is the Stuttgart State Theater with its renowned theater, world-famous ballet and an opera that has been voted opera house of the year several times over.

THEMES OF THE CONFERENCE AND CONTRIBUTED PAPERS

Algorithm design, analysis and applications of numerical schemes of accuracy greater than two for partial differential equations, following finite difference, finite volume or finite element approaches. Potential contributors are invited to submit an abstract of no more than two pages in pdf format via the website: honom2017.iag.uni-stuttgart.de

INVITED SPEAKERS

Christoph Brehm, USA
Marcus Grote, Switzerland
Stefan Hickel, Netherlands
Guus Jacobs, USA
Catherine Mavriplis, Canada
Lorenzo Pareschi, Italy
Carlos Parés, Spain
Jianxian Qiu, China
Giovanni Russo, Italy
Jörn Sesterhenn, Germany

Webpage:

honom2017.iag. uni-stuttgart.de

IMPORTANT DATES

Abstract submission (2 pages max.):
January 15, 2017

CONFERENCE FEES

Conference fee: 100€ to be paid in cash at the conference.

CONFERENCE VENUE

The conference will take place at the
Universität Stuttgart,
Pfaffenwaldring 27.

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Schloss-platz

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Wein-berge

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