FVCA7 - The International Symposium of Finite Volumes for Complex Applications VII
Berlin, June 15–20, 2014

Objectives   The finite volume method in its various variants is a space discretization technique for partial differential equations based on the fundamental physical principle of conservation. It has been used successfully in many applications including fluid dynamics, magnetohydrodynamics, structural analysis, nuclear physics, and semiconductor theory. Recent decades have brought significant success in the theoretical understanding of the method. Many finite volume methods preserve further qualitative or asymptotic properties including maximum principles, dissipativity, monotone decay of the free energy, or asymptotic stability.

Due to these properties, finite volume methods belong to the wider class of compatible discretization methods, which preserve qualitative properties of continuous problems at the discrete level. This structural approach to the discretization of partial differential equations becomes particularly important for multiphysics and multiscale applications.

The goal of the symposium is to bring together mathematicians, physicists, and engineers interested in physically motivated discretizations. Contributions to the further advancement of the theoretical understanding of suitable finite volume, finite element, discontinuous Galerkin and other discretization schemes, and the exploration of new application fields for them are welcome.

Main Focus

- Preservation of physical properties on the discrete level
- Physically consistent coupling between discretizations for different processes
- Convergence, stability, and error analysis
- Connections to other discretization methods
- Relationship between grids and discretization schemes
- Complex geometries and adaptivity
- Shock waves and other flow discontinuities
- New and existing schemes and their limitations
- Bottlenecks in the solution of large scale problems
- Applications: Atmosphere and ocean modeling, Chemical engineering and combustion, Energy generation and storage, Semiconductors and electrochemistry, Porous media.

Confirmed Invited Speakers

Ann Almgren (Lawrence Berkeley National Lab, USA)

Pavel Bochev (Sandia National Laboratories, USA)

Françis Bouchut (Université Paris-Est – Marne-la-Vallée, FR)

Claire Chainais-Hillairet (Université Lille 1 Sciences et Technologies, FR)

Bruno Despres (Université Paris VI)

Michael Dumbser (University of Trento, IT)

Philippe Helluy (IRMA – Institut de Recherche Mathématique Avancée, FR)

Karol Mikula (Slovak University of Technology)

Siddhartha Mishra (ETH Zürich – Eidgenössische Technische Hochschule Zürich)

Conference Proceedings   Full papers are selected according to the review process. The proceedings are issued as a hardcover book at Springer and distributed at the conference.

Important Dates

January 31, 2014:	Submission of full version of papers
February 21, 2014:	Notice of (conditional) paper acceptance
March 07, 2014:	Submission of final version of the paper
March 14, 2014:	Notice of acceptance of the final version of the paper
April 11, 2014:	Registration deadline for participants (early bird)
May 16, 2014:	Registration deadline for participants

Funding   Limited funding for young researchers and researchers from developing countries is available. Autors can apply for financial support by sending CV and publication list by email to fvca7@wias-berlin.de (together with the paper submission). Notification of acceptance will be given after having finished the papers review process.

Conference Fee   (including welcome reception, break refreshments, a conference dinner, a boat trip, conference proceedings, and a booklet of abstracts)

early registration fee (before April 11, 2014):   **270,00 €**
regular registration fee (after April 11, 2014):   **320,00 €**

Organizing Committee   P. Bastian (Universität Heidelberg), R. Eymard (Université Paris-Est), J. Fürst (CTU Prague), V. John (WIAS Berlin/FU Berlin), R. Klein (FU Berlin), M. Ohlberger (Universität Münster), Ch. Rohde (Universität Stuttgart), J. Sesterhenn (TU Berlin), J. Fuhrmann, A. Glitzky, A. Linke (all WIAS Berlin)

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Program   Lectures are scheduled from Monday morning until Friday afternoon. The invited lectures will be 40 minutes including discussion and the contributed talks will be 20 minutes including discussion. Additionally, poster sessions are planned on Tuesday and Thursday afternoon.

Contact and further information

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