11th OPENFOAM® WORKSHOP

GUIMARÃES — PORTUGAL

JUNE 26th — 30th, 2016

FINAL PROGRAM

JUNE 27th, 2016
Monday, June 27th

8:30 - 9:00
Plenary Lectures (Grand Auditorium)

9:00 - 9:45
A Year in Review (Miroslav Jusak, Wilke Liedl/Univ. Zagreb)

9:45 - 10:30
Coffee-Break

10:30 - 11:00
Free Surface Flows

11:00 - 11:20

Modeling free surface flows in the circular wave flume with a VOF approach (G Fourestier, T Santagostini, ML Boulluec, P Magaldi, Martinou)

11:20 - 11:40

Simulation of wave-induced structural dynamics of the hull of a vessel using a meshless immersed boundary method (H. Choi, H. Lee, SH Rhee)

11:40 - 12:00

Influence of the flow field on the hypervelocity impact of plastic plates (I. Fournier, T Santagostini, KS Boulou, P Magaldi, Martinou)

12:00 - 12:20

Numerical assessment of third-order high-resolution schemes in OpenFOAM (I. Fournier, T Santagostini, KS Boulou, P Magaldi, Martinou)

12:40 - 13:00

Simulation of a vessel's motion in the presence of free surface flows (L. De Smedt, B. Devolder, P. Rauwoens, P. Troch)

13:00 - 14:00
Lunch

14:30 - 14:45
Plenary Lectures (Grand Auditorium)

Feature Presentation - Engys

14:45 - 15:30
Challenges on the Injection Molding Industry (Marcos Sampaio, Celoplás/Nanologic)

15:40 - 16:00

Lubricated contact models for plastic extrusion processes (D. van den Berg, H. Jusak)

16:00 - 16:20

A fluid-structure interaction algorithm for ship hydroelasticity (M. Groen, J. Meersse)

16:20 - 16:40

On-dredging problems: a PIMPLE simulation for a fixed-bed reactor (K. Kuzmina, I. Marchevsky)

16:40 - 17:00

Numerical simulation of multiphase spray combustion (D. van den Berg, J. van der Knaap, P. Troch)

17:00 - 17:30
Coffee-Break

17:30 - 18:30
Poster Session

18:30 - 19:30
Wine Tasting
### Tuesday, June 28th

<table>
<thead>
<tr>
<th>Time</th>
<th>Course Track 1 (Room GA)</th>
<th>Course Track 2 (Room PA)</th>
<th>Course Track 3 (Room S1)</th>
<th>Course Track 4 (Room S2)</th>
<th>Course Track 5 (Room S3)</th>
<th>Course Track 6 (Room S4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 10:00</td>
<td>Rotating machinery in FOAM-extend Håkan Nilsson  (Lecture)</td>
<td>Using OpenFOAM fluid structure interaction library Zeljko Tukovic  (Hands-On)</td>
<td>Erosion modelling in OpenFOAM Alejandro Lopez (Lecture)</td>
<td>Introduction to OpenQBMM and quadrature-based moment methods Alberto Passalacqua (Lecture)</td>
<td>snappyHexMesh Theory and Application Andrew Jackson (Hands-On)</td>
<td>cfMesh Tessa Uro'c (Hands-On)</td>
</tr>
<tr>
<td>10:00 - 10:30</td>
<td>Coffee-Break</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 - 12:00</td>
<td>Pressure-velocity coupling in solvers Hrvoje Jasak (N/A)</td>
<td>Introduction to the programming language of OpenFOAM® Vuko Vukčević (Hands-On)</td>
<td>PyFoam for the lazy Bernhard Gschaider (Hands-On)</td>
<td>New IHOAM developments Javier I. Lara (Lecture)</td>
<td>Introduction to meshing with blockMesh Vanja Škurić (Hands-On)</td>
<td>Practical CFD applications using HELIX-OS Paolo Geremia (Hands-On)</td>
</tr>
<tr>
<td>12:00 - 13:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lunch</td>
</tr>
<tr>
<td>13:30 - 15:00</td>
<td>Advanced dynamic mesh motion Gianluca Montenegro (Lecture)</td>
<td>Introduction to PyFoam and swak4Foam Bernhard Gschaider (Hands-On)</td>
<td>OpenFOAM® software bundles by CFDsupport Jakub Benda (Hands-On)</td>
<td>Introduction to simulating real 3d flows: the DrivAer case Gavin Tabor (N/A)</td>
<td>Understanding and prototyping fvOptions Jens Höjken (Hands-On)</td>
<td>Introduction to solid mechanics with OpenFOAM Philip Geremia (Hands-On)</td>
</tr>
<tr>
<td>15:00 - 16:30</td>
<td>Simulations with particles, using the Lagrangian method Alejandro Lopez (Hands-On)</td>
<td>Extending Boundary Conditions at Runtime Tomislav Maric (Hands-On)</td>
<td>Design and Rationale of High Resolution Schemes in OpenFOAM Holger Marschall (Lecture)</td>
<td>Understanding and extending scalar/TransportFoam Henrik Rusche (N/A)</td>
<td>Implementation of turbulence models Luiz Fernando. L. R. Silva (Hands-On)</td>
<td>Introduction to post-processing with ParaView Philip Geremia (Hands-On)</td>
</tr>
<tr>
<td>16:30 - 17:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coffee-Break</td>
</tr>
<tr>
<td>17:00 - 18:30</td>
<td>Introduction to numerical optimization using DAKOTA and OpenFOAM® Joel Guerrero (N/A)</td>
<td>Implementation of simple FSI model with functionObject I. Marchevsky (Hands-On)</td>
<td>Using EPIC to run OpenFOAM® online Mike Turner (Hands-On) Internet Room</td>
<td>Implementation of acoustic analogy Ila Evdokimov (Hands-On)</td>
<td>Learning how to use free surface flows in OpenFOAM 3.0 Victoria Korchagova (Hands-On)</td>
<td></td>
</tr>
</tbody>
</table>
Wednesday, June 29th

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td>Opening Ceremony</td>
</tr>
<tr>
<td>9:00</td>
<td>Keynote Speech</td>
</tr>
<tr>
<td>9:15</td>
<td>Welcome and Introduction to the Conference</td>
</tr>
<tr>
<td>9:30</td>
<td>SESSION 1: TURBOMACHINERY (Room PA)</td>
</tr>
<tr>
<td>10:30</td>
<td>SESSION 2: DISPERSE MULTIPHASE FLOWS II (Room S2)</td>
</tr>
<tr>
<td>11:30</td>
<td>SESSION 3: MULTIPHASE FLOWS I (Room S4)</td>
</tr>
<tr>
<td>12:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>14:00</td>
<td>SESSION 4: HEAT TRANSFER SIMULATIONS FOR A 3D PRINTED SOLID (Room PA)</td>
</tr>
<tr>
<td>15:00</td>
<td>SESSION 5: TURBOMACHINERY (Room PA)</td>
</tr>
<tr>
<td>16:00</td>
<td>SESSION 6: Dispere Multiphase Flows II (Room S2)</td>
</tr>
<tr>
<td>17:00</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>18:00</td>
<td>SESSION 7: Multiphase Flows I (Room S4)</td>
</tr>
<tr>
<td>19:00</td>
<td>Banquet</td>
</tr>
</tbody>
</table>

**SESSION 1: TURBOMACHINERY (Room PA)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 2: DISPERSE MULTIPHASE FLOWS II (Room S2)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 3: MULTIPHASE FLOWS I (Room S4)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 4: HEAT TRANSFER SIMULATIONS FOR A 3D PRINTED SOLID (Room PA)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 5: TURBOMACHINERY (Room PA)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 6: Dispere Multiphase Flows II (Room S2)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**SESSION 7: Multiphase Flows I (Room S4)**
- High-Speed Pumps and Turbomachinery Applications (H. Voelcker, J. Doepfner)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Harmonic Balance Method for Time-Periodic Turbomachinery Applications (S. H. H. Wang, J. A. Tausch)
- Direct Numerical Simulation of Fluid Flows Using the Navier-Stokes Solver (P. R. S. P. C. de Souza, C. R. S. R. de Souza)

**Coffee Break**

**Keynote Speeches**
- Opening Remarks by the Conference Chair
- Plenary Lectures by Distinguished Speakers
- Keynote Address by a Senior Industry Executive

**Banquet**
- Award Ceremony for Best Poster and Paper Presentations
- Networking Opportunities with Colleagues and Industry Partners
Thursday, June 30th

**Clinics**

In this particular session, questions/doubts about OpenFOAM® Technology will be answered/clarified by a group of experts. All the OFW11 attendees will have the chance to ask questions about OpenFOAM® Technology, which will be forwarded to a group of experts.

On the community day, the answers will be given in parallel sessions, in a similar organization to the training sessions.

The OFW11 Clinics Sessions contents will be announced in advance to allow the attendance of anyone interested. Register at the 11th OpenFOAM® Workshop. You’ll be contacted soon to place your questions/doubts.

Current list of OpenFOAM® Technology experts available for OFW11 Clinics:

- Andrew Jackson - Engys Ltd.
- Bernhard Gschaider - HFD Research GmbH
- Bruno Santos - blueCAPE Lda
- Håkan Nilsson - Chalmers University of Technology
- Hrvoje Jasak - Wikki/University of Zagreb
- Jens Höpken - Sourceflux UG
- Joel Guerrero - University of Genoa
- Luiz Fernando L. R. Silva - Federal University of Rio de Janeiro
- Paolo Geremia - Engys Ltd.
- Philip Cardiff - University College Dublin
- Tomislav Maric - Sourceflux UG
- Željko Tuković - University of Zagreb

**Birds-of-a-Feather (BoF):**

BoF sessions are informal meetings where the attendees group together, based on a shared interest, and carry out discussions without any pre-planned agenda.

*Examples:* Turbulence Modeling, Immersed Boundary, Meshing, Code Contribution

**Special interest groups (SIG):**

Informal group meetings to discuss a shared interest in a specific area of knowledge, learning or technology where members cooperate to effect or to produce solutions within their particular field.
Examples: Wind Energy, Ship Hydro, Combustion, Turbomachinery, Documentation Project

Platinum Sponsors

Gold Sponsor

Silver Sponsors

Bronze Sponsors

Sponsors

Partners