

## 7th SPHERIC Presentation Schedule

### Day 1: Tuesday 29 May 2012

8:00	Registration		
8:30	Opening of the 7th SPHERIC Workshop		
<b>8:45</b>	<b>Keynote Lecture</b>	<b>Particles for fluids: SPH methods as a mean-field flow</b>	<b>M. Pulvirenti</b>
<b>9:35</b>	<b>Session 1</b>	<b>Multi-Fluids</b>	<b>Chair: B. D. Rogers</b>
	Paper 1-1	SPH modelling of two-phase bubbly flows	E. Torti, <u>S. Sibilla</u>
	Paper 1-2	SPH multiphase simulation of bubbly flows	<u>N. Grenier</u> , M. Kerhuel, D. Le Touzé, A. Colagrossi, G. Colicchio, M. Antuono, D. Zuzio
	Paper 1-3	Surface tension and wetting phenomena with SPH	<u>T. Breinlinger*</u> , A. Hashibon, T. Kraft
	Paper 1-4	Contact line hydrodynamics with SPH	<u>S. Adami</u> , X. Y. Hu, N. A. Adams
10:40	Coffee Break		
<b>11:10</b>	<b>Session 2</b>	<b>Geotechnical Applications</b>	<b>Chair: X. Y. Hu</b>
	Paper 2-1	SPH non-Newtonian model for ice sheet and ice shelf dynamics	<u>A. M. Tartakovsky</u> , W. Pan, J. J. Monaghan
	Paper 2-2	Simulation of film and droplet flow on wide aperture fractures using smoothed particle hydrodynamics	<u>J. Kordilla*</u> , A. M. Tartakovsky, T. Geyer
	Paper 2-3	Application of SPH to erosion and excavation problems on the examples of jet grouting and offshore engineering	<u>B. Stefanova</u> , J. Bubel, J. Grabe
	Paper 2-4	A simple SPH model of water-soil interaction in porous media	<u>C. Ulrich</u> , T. Rung
<b>12:15</b>	<b>Session 3</b>	<b>Solids and Fracture Mechanics</b>	<b>Chair: P. K. Stansby</b>
	Paper 3-1	SPH simulation of granular material collapses	E. Paris, <u>L. Minatti</u>
	Paper 3-2	Towards simulations of abrasive flow machining	<u>C. Nutto</u> , C. Bierwisch, H. Lagger, M. Moseler
	Paper 3-3	A modified Godunov SPH method for materials with strength	<u>A. Connolly*</u> , L. Iannucci
	Paper 3-4	Dynamic refinement for SPH simulations of post-failure flow of non-cohesive soil	Y. R. López, <u>D. Roose</u> , C. R. Morfa
13:20	Lunch		
<b>14:20</b>	<b>Session 4</b>	<b>Validation</b>	<b>Chair: A. M. Tartakovsky</b>
	Paper 4-1	Flow prediction of reactive rotational molding using smoothed particle hydrodynamics method	<u>S. Riviere*</u> , S. Farzaneh, A. Tcharkhtchi, S. Khelladi, F. Bakir
	Paper 4-2	SPH simulations and experiments of sloshing in an egg-shaped shell	<u>J. Grant*</u> , M. Prakash, S. E. Semercigil, O. F. Turan
	Paper 4-3	On the use of a time-dependent driving force in SPH simulations	<u>Sh. Khorasanizade*</u> , J. F. Pinto, J. M. M. Sousa
	Paper 4-4	Incompressible smoothed particle hydrodynamics: proposition and validation of a fully-explicit algorithm	<u>D. A. Barcarolo*</u> , D. Le Touzé, F. de Vuyst
	Paper 4-5	Modeling of gravity wave viscous attenuation	A. Colagrossi, <u>A. Souto-Iglesias</u> , M. Antuono
<b>15:40</b>	<b>Session 5</b>	<b>Astrophysical Applications</b>	<b>Chair: J. J. Monaghan</b>
	Paper 5-1	Hyperbolic divergence cleaning for SPH	<u>T. S. Tricco*</u> , D. J. Price
	Paper 5-2	Modelling magnetic fields and turbulence with SPH	<u>D. J. Price</u>
	Paper 5-3	An algorithm for dusty gas with SPH	<u>G. Laibe</u> , D. J. Price, B. A. Ayliffe
16:30	Coffee Break		
<b>16:45</b>	<b>Discussion</b>	<b>Ideas about viscosity</b>	<b>Chair: J. J. Monaghan</b>
17:45	Welcome Reception		

\* denotes eligible for student prize

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### Day 2: Wednesday 30 May 2012

<b>8:45</b>	<b>Keynote Lecture</b>	<b>Towards interactive SPH applications and post-processing</b>	<b>J. Biddiscombe</b>
<b>9:35</b>	<b>Session 6</b>	<b>Boundary Conditions and Validation</b>	<b>Chair: A. Souto-Iglesias</b>
	Paper 6-1	2D and 3D sloshing simulation by SPH	<a href="#">M. Leonardi*</a> , S. Manenti, S. Sibilla
	Paper 6-2	SPH modeling of non-rectangular channel flows with open boundaries	<a href="#">K.-H. Chang*</a> , T.-J. Chang
	Paper 6-3	Study of differential operators in the context of the semi-analytical wall boundary conditions	<a href="#">A. Mayrhofer*</a> , B. D. Rogers, D. Violeau, M. Ferrand
	Paper 6-4	Apply C1 consistency to SPH with free surface	<a href="#">H. Xu*</a> , M. H. Dao, E. S. Chan, P. Tkalich
	Paper 6-5	SPH modelling of viscous flows around cylinders from Re=10 to Re=1000	<a href="#">S. Marrone</a> , M. Antuono, A. Colagrossi, G. Colicchio, G. Graziani
10:55	Coffee Break		
<b>11:25</b>	<b>Session 7</b>	<b>Turbulence Modelling</b>	<b>Chair: M. Gomez Gesteira</b>
	Paper 7-1	Turbulent coherent structures under breaking water waves	<a href="#">R. Jalali Farahani*</a> , R. A. Dalrymple, A. Hérault, G. Bilotta
	Paper 7-2	A SPH model for incompressible turbulence	<a href="#">X. Y. Hu</a> , N. A. Adams
	Paper 7-3	SPH simulations of 2D turbulence driven by stirrers	A. Valizadeh, <a href="#">J. J. Monaghan</a>
	Paper 7-4	Advective and diffusive turbulent mixing	J. J. Monaghan, <a href="#">J. B. Kajtar</a>
<b>12:30</b>	<b>Session 8</b>	<b>Alternative Formulations</b>	<b>Chair: P. Groenenboom</b>
	Paper 8-1	On the use of numerical diffusive terms in weakly-compressible SPH schemes	<a href="#">M. Antuono</a> , A. Colagrossi, S. Marrone
	Paper 8-2	SPH-ALE for simulations of rotor-stator interactions	<a href="#">M. Neuhauser*</a> , J.-C. Marongiu, F. Leboeuf, M. Rentschler, E. Parkinson
	Paper 8-3	FPM simulations of a 3D impinging jet on a flat plate comparison with CFD and experimental results	<a href="#">C. Vessaz*</a> , E. Jahanbakhsh, F. Avellan
	Paper 8-4	Remeshed Particles: a robust and efficient method for multiphysics simulations	<a href="#">W. M. van Rees*</a> , P. Koumoutsakos
13:35	Lunch		
<b>14:35</b>	<b>Session 9</b>	<b>Maritime Applications</b>	<b>Chair: D. Violeau</b>
	Paper 9-1	Use of SPHERA code to investigate local scouring effects induced by fluvial structures downstream a barrage	<a href="#">G. Agate</a> , R. Guandalini, S. Manenti, S. Sibilla, M. Gallati
	Paper 9-2	SPH modelling of propeller induced harbour-bed erosion by a container vessel	<a href="#">C. Ulrich</a> , T. Rung
	Paper 9-3	SPH simulations of bow waves dynamics	<a href="#">B. Bouscasse</a> , S. Marrone, A. Colagrossi, R. Broglia
	Paper 9-4	Using SPHysics to simulate a Wigley hull in head waves	<a href="#">M. Pearce*</a> , G. Thomas, D. Hudson
<b>15:40</b>	<b>Session 10</b>	<b>High Performance Computing</b>	<b>Chair: D. J. Price</b>
	Paper 10-1	Efficient parallelisation of 3D SPH schemes	<a href="#">D. Guibert</a> , M. de Lefte, G. Oger, J.-G. Piccinali
	Paper 10-2	New OpenMP-MPI-CUDA implementation for parallel SPH simulations on heterogeneous CPU-GPU clusters	<a href="#">J. M. Domínguez*</a> , A. J. C. Crespo, M. Gomez-Gesteira, D. Valdez-Balderas, B. D. Rogers
	Paper 10-3	A journey from single-GPU to optimized multi-GPU SPH with CUDA	E. Rustico, <a href="#">A. Hérault</a> , G. Bilotta, C. del Negro, G. Gallo, R. A. Dalrymple
	Paper 10-4	Parallelisation of a finite volume particle method code	<a href="#">M. Basa</a> , L. Lobovský, N. J. Quinlan
16:45	Coffee Break		
<b>17:00</b>	<b>Discussion</b>	<b>Ideas about the treatment of boundaries</b>	<b>Chair: J. J. Monaghan</b>
17:45	Steering Committee Meeting		
18:45	Workshop Banquet		

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## 7th SPHERIC Presentation Schedule

### Day 3: Thursday 31 May 2012

<b>9:35</b>	<b>Session 11</b>	<b>Boundary Conditions and Validation</b>	<b>Chair: D. Le Touzé</b>
	Paper 11-1	Use of complex inlet boundary conditions for accelerated studies of green water events	<a href="#">C. Pákozdi</a> , C. T. Stansberg, SINTEF SCORE-team
	Paper 11-2	Absorbing inlet/outlet boundary conditions for 2D SPH turbulent free-surface flows	O. Mahmood, <a href="#">D. Violeau</a> , C. Kassiotis, B. D. Rogers, M. Ferrand
	Paper 11-3	On the boundary condition enforcement in SPH methods	<a href="#">L. M. González</a> , J. L. Cercós, F. Maciá
	Paper 11-4	A diffusion based shifting algorithm for incompressible smoothed particle hydrodynamics: Validation with cases involving slamming bodies and cylinder exit	<a href="#">A. Skillen</a> , S. J. Lind, B. D. Rogers, P. K. Stansby
10:40	Coffee Break		
<b>11:10</b>	<b>Session 12</b>	<b>Multi-Fluids</b>	<b>Chair: N. J. Quinlan</b>
	Paper 12-1	SPH multi-fluid model with interface stabilization based on a quasi-buoyancy correction	<a href="#">A. C. H. Kruisbrink</a> , F. R. Pearce, T. Yue, K. A. Cliffe, H. P. Morvan
	Paper 12-2	A multiphase incompressible-compressible smoothed particle hydrodynamics method	<a href="#">S. J. Lind</a> , P. K. Stansby, B. D. Rogers
	Paper 12-3	SPH for two-phase fluid flow including cavitation	<a href="#">P. Groenenboom</a>
	Paper 12-4	A consistent particle method for simulation of multiphase flows with high density ratios	<a href="#">A. Khayyer</a> , H. Gotoh
<b>12:15</b>	<b>Session 13</b>	<b>Alternative Formulations</b>	<b>Chair: A. Colagrossi</b>
	Paper 13-1	Development of SPH variable resolution using dynamic particle coalescing and splitting	<a href="#">R. Vacondio</a> , B. D. Rogers, P. K. Stansby, P. Mignosa, J. Feldman
	Paper 13-2	Development of the finite volume particle method for internal flow with rigid body dynamics	<a href="#">N. J. Quinlan</a> , L. Lobovský, M. Basa, R. M. Nestor
	Paper 13-3	Third-generation RSPH in 3D	<a href="#">S. Børve</a>
	Paper 13-4	Development and validation of a SPH model using discrete surface elements at boundaries	<a href="#">A. Amicarelli</a> , G. Agate, R. Guandalini
	Paper 13-5	An improved consistent 3D particle method for enhanced wave impact calculations	H. Gotoh, <a href="#">A. Khayyer</a>
13:35	Lunch		
<b>14:35</b>	<b>Session 14</b>	<b>Hydraulic Applications and Validation</b>	<b>Chair: J.-C. Marongiu</b>
	Paper 14-1	Experimental and numerical modeling of the impulsive dynamics of an underwater non-cohesive sediment deposit subjected to a gaseous jet	<a href="#">S. Manenti</a> , S. Sibilla, M. Gallati, G. Agate, R. Guandalini
	Paper 14-2	3-D coastal inundation simulation using a shallow-water solver	J. Zhao, <a href="#">D. Le Touzé</a> , L. Gentaz, P. Ferrant
	Paper 14-3	Improved accuracy in modelling armoured breakwaters with SPH	<a href="#">C. Altomare</a> , X. F. Gironella, A. J. C. Crespo, J. M. Domínguez, B. D. Rogers
	Paper 14-4	Simulation of dam-break flow in channel expansion with coupled 2-D/3-D SPH model	<a href="#">E. Džebo</a> , D. Žagar, M. Četina, G. Petkovšek
	Paper 14-5	SPH benchmarking: a comparison of SPH variants on selected test cases within the NextMuSE initiative	<a href="#">D. Le Touzé</a> , D. A. Barcarolo, M. Kerhuel, F. Leboeuf, J. Caro, N. J. Quinlan, L. Lobovsky, M. Basa, A. Colagrossi, S. Marrone, J.-C. Marongiu, M. de Leffe, P.-M. Guilcher
15:55	Closing of 7th SPHERIC Workshop		

## 7th SPHERIC Training Day

Friday 1 June 2012

<b>9:00</b>	<b>Session 1</b>	<b>Theory and Application of SPH - Part 1: Selected Applications of the Smoothed Particle Hydrodynamics method</b>	<b>Paul Groenenboom</b>
10:30	Coffee Break		
<b>11:00</b>	<b>Session 2</b>	<b>Theory and Application of SPH - Part 2: An Introduction to Multi-Phase Modelling in SPH</b>	<b>Ben Rogers</b>
12:30	Lunch		
<b>13:30</b>	<b>Session 3</b>	<b>Simulation with DualSPHysics</b>	<b>Ben Rogers, Alex Crespo and Jose Domínguez</b>
15:15	Coffee Break		
<b>15:30</b>	<b>Session 4</b>	<b>Post-Processing with Paraview PV-Meshless</b>	<b>John Biddiscombe</b>
17:30	Close of 7th SPHERIC Training Day		