SPHERIC 2015 Program

Tuesday, June 16

08:15	**Registration**		
09:00	**Opening**		
09:15	**Keynote 1**	**The Evolution of SPH − J. J. Monaghan**	**Chair: D. Price**
10:10	**Coffee break**		
10:40	**Session 1**	**Multiphase flow 1**	**Chair: A. Colagrossi**
	Paper 1-1	SPH model for stochastic Navier-Stokes and advection-diffusion equations	J. Kordilla, A. Tartakovsky & W. Pan
	Paper 1-2	Simulation of dispersion in a porous media with multiphase Smoothed Particle Hydrodynamics	C. Alvarado-Rodríguez, A. Barreiro, J.M. Domínguez, A.J.C. Crespo, M. Gómez-Gesteira & J. Klapp
	Paper 1-3	3D SPH simulation of bubble rising and coalescing in viscous fluids	P. Sun, A. Zhang & F. Ming
	Paper 1-4	A 3D SPH integrated model for granular flows with transport of solid bodies: model couplings and enhanced boundary treatment based on surface wall elements	A. Amicarelli & G. Agate
11:45	**Session 2**	**Convergence**	**Chair: D. Violeau**
	Paper 2-1	Influence of particle disorder and smoothing length on SPH operator accuracy	G. Chaussonnet, S. Braun, L. Wieth, R. Koch & H.-J. Bauer
	Paper 2-2	An improved CSPM approximation for multi-dimensional second-order derivatives	S.P. Korzilius, W.H.A. Schilders & M.J.H. Anthonissen
	Paper 2-3	CRKSPH - A conservative reproducing kernel smoothed particle hydrodynamics scheme	C. Raskin, N. Frontiere & J. M. Owen
	Paper 2-4	High-order and adaptive procedures for SPH-ALE simulations based on Moving Least Squares method	G.-A. Renaut, J.-C. Marongiu & S. Aubert
12:50	**Lunch**		
14:20	**Session 3**	**Multiphase flow 2**	**Chair: S. Sibilla**
	Paper 3-1	Validation of robust SPH schemes for fully compressible multiphase flows	I. Zisis, R. Messahel, B. van der Linden, M. Souli & B. Korena
	Paper 3-2	Two phase mixtures in SPH — A new approach	D. Price & G. Laibe
	Paper 3-3	Modeling of quantitative droplet dynamics with coalescence-bouncing transition in a pseudo-single-phase system using ISPH and WCSPH	M. Hirschler, M. Huber, P. Kunz, G. Oger, D. Le Touzé & U. Nieken
	Paper 3-4	An ISPH scheme with shifting for Newtonian and non-Newtonian multi-phase flows	A.M. Xenakis, S.J. Lind, P.K. Stansby & B.D. Rogers
15:25	**Session 4**	**Alternative Approaches**	**Chair: N. Quinlan**
	Paper 4-1	Finite Volume Particle Method for Fluid-Structure Interaction	E. Jahanbakhsh, C. Vessaz, A. Maertens & F. Avellan
	Paper 4-2	The Discrete Vortex Hydrodynamics method: similarities and differences with the SPH	A. Colagrossi, E. Rossi & S. Marrone
	Paper 4-3	Free surface application of the PFEM (particles + finite elements) methodology to submerged cylinders	J.M. Gimenez, L.M. Gonzalez & E. Ferrer
	Paper 4-4	Solution of stationary Stokes and Navier-Stokes problems using a Least Square Residual Method with a Modified Finite Particle Method	A. Montanino D. Asprone A.Reali F. Auricchio
16:30	**Coffee break**		
17:00	**Session 5**	**Incompressibility**	**Chair: X. Hu**
	Paper 5-1	ISPH simulation of the motion of elliptic particles under external electric field	N. Tofighi, M. Ozbulut, J.J. Feng & M. Yildiz
	Paper 5-2	Investigations into High-Order Incompressible SPH	S.J. Lind & P.K. Stansby
	Paper 5-3	On Enhancement of Energy Conservation Properties of ISPH and MPS Methods	A. Khayyer, H. Gotoh, Y. Shimizu & K. Gotoh
17:55	**Discussion panel 1: Enforcing Incompressibility in SPH**		**Chair: A. Souto-Iglesias**
19:15	**Welcome cocktail**		

Wednesday, June 17

08:30	**Keynote 2**	**Adventures in Modeling Breaking Water Waves – R.A. Dalrymple**	**Chair: P.K. Stansby**
09:25	**Session 6**	**Adaptivity 1**	**Chair: J.-C. Marongiu**
	Paper 6-1	A novel multi-scale technique for projection-based particle methods	H. Gotoh, N. Tsuruta & A. Khayyer
	Paper 6-2	An Approach to Error-Estimation-Based Adaptivity in Smoothed Particle Hydrodynamics	F. Spreng & P. Eberhard
	Paper 6-3	Particle refinement applied to SPH method: stability, accuracy and CPU analysis	L. Chiron, G. Oger, M. De Leffe & D. Le Touzé
	Paper 6-4	DualSPHysics with adaptivity: towards the simulation of real engineering problems with variable resolution	R. Vacondio, A.J.C. Crespo, J.M. Domínguez, B.D.Rogers & M. Gómez-Gesteira
10:30	**Coffee break**		
11:00	**Session 7**	**Stability**	**Chair: J.J. Monaghan**
	Paper 7-1	Choosing the time step in ISPH	D. Violeau & A. Leroy
	Paper 7-2	Stable smoothed particle magnetohydrodynamics in very steep density gradients	B. T. Lewis, M. R. Bate J. J. Monaghan, & D. J. Price
	Paper 7-3	How the fragmentation pattern of an expanding steel ring depends on statistical variation, resolution, initial particle distribution, and particle regularization	S. Børve & J.F. Moxnes
	Paper 7-4	A consistent continuous particle reordering in weakly-compressible SPH through an ALE formalism	G. Oger, S. Marrone & D. Le Touzé
12:05	**Session 8**	**Water Waves**	**Chair: P.K. Stansby**
	Paper 8-1	Simulating the impact of extreme sea waves on offshore structures with SPH	R.H.A. Ijzermans, K. Pan, K.A. Kochanski, B.D. Jones, A. Thyagarajan, V. Ramohalli Gopala, B.W.H. van Beest, J.R. Williams & J.M.V.A. Koelman
	Paper 8-2	Numerical wave dynamics using Lagrangian approach: wave generation and passive & active wave absorption	C. Altomare, J.M. Dominguez, A. Barreiro, T. Suzuki, A.J.C. Crespo & M. Gómez-Gesteira
	Paper 8-3	3D–SPH advanced modelling of the Vajont landslide	G. Agate, S. Manenti, R. Guandalini, M. Gallati, S. Sibilla & L. D'Alpaos
	Paper 8-4	Optimisation of a Coastal Defence Geometry Using SPH	J. Hall, T.C.S. Rendall & C.B. Allen
13:10	**Lunch**		
14:40	**Session 9**	**Free-Surface flow**	**Chair: D. Le Touzé**
	Paper 9-1	Simulating Oil Flow for Gearbox Lubrication using SPH	M.Z. Mettichi, Y. Gargouri, P.H.L. Groenenboom & F. el Khaldi
	Paper 9-2	A generalised transport-velocity formulation for smoothed particles hydrodynamics	C. Zhang, X.Y. Hu & N.A. Adams
	Paper 9-3	A Semi-implicit Bivariate SPH Scheme for the Shallow Water Equations	A.O. Bankole, A. Iske, T. Rung & M. Dumbser
15:35	**Coffee break**		
16:05	**Session 10**	**Adaptivity 2**	**Chair: B.D. Rogers**
	Paper 10-1	Error Minimizing SPH Particle Merging for Constructing Multi-Resolution Hierarchies	J. Fischer, L. Linsen & P. Rosenthal
	Paper 10-2	Reducing the Particle Refinement Error of the Density Summation and the Kernel Gradient	C. Bergmeister, M. Meister, D. Winkler & W. Rauch
	Paper 10-3	Application of an Adaptive Smoothed Particle Hydrodynamics Formulation to Hydrodynamic Problems driven by Surface Tension	D. Schnabel, A. Mueller & P. Eberhard
	Paper 10-4	Skewed kernel function approach for the simulation of shock fronts using SPH	S.S. Prasanna Kumar & B.S.V. Patnaik
17:10	**Discussion panel 2: Is Adaptivity useful in SPH?**		**Chair: B.D. Rogers**
18:00	**Steering Committee meeting**		
19:00	**Trip to Banquet Venue**		
19:45	**Banquet and Ceremony for the Monaghan Prize**		

Thursday, June 18

09:15	**Session 11**	**High Performance Computing**	**Chair: R. A. Dalrymple**
	Paper 11-1	SHIXDOF ⇄ AQUAgpusph: nonlinear coupled ship motions and sloshing in free surface tanks	J.L. Cercos-Pita, G. Bulian & A. Souto-Iglesias
	Paper 11-2	Exploring an Efficient Parallel Implementation Model for 3-D Incompressible Smoothed Particle Hydrodynamics	X. Guo, B.D. Rogers, S. Lind, P.K. Stansby & M. Ashworth
	Paper 11-3	Debris flow modelling with a high-performance SPH implementation	R.B. Canelas, J.M. Domínguez, A.J.C. Crespo & R.M. L. Ferreira
10:10	**Coffee break**		
10:40	**Session 12**	**Boundary conditions 1**	**Chair: A. Souto-Iglesias**
	Paper 12-1	A framework for permeable boundary conditions in SPH: Inlet, Outlet, Periodicity	S. Braun, L. Wieth, R. Koch & H.-J.-Bauer
	Paper 12-2	Open boundary conditions for ISPH with the unified semi-analytical boundary conditions	A. Leroy, D. Violeau, M. Ferrand, L. Fratter, & A. Joly
	Paper 12-3	Inflow/ outflow with Dirichlet boundary conditions for pressure in ISPH	P. Kunz, M. Hirschler, M. Huber & U. Nieken
	Paper 12-4	Application of the unified semi-analytical wall boundary conditions to multi-phase SPH	A. Ghaïtanellis, D. Violeau, A. Joly, M. Ferrand & A. Leroy
	Paper 12-5	Evaluation of reliability and efficiency of different boundary conditions in a SPH code	J.M. Domínguez, G. Fourtakas, J.L. Cercos-Pita, R. Vacondio, B.D. Rogers & A.J.C. Crespo
12:00	**Session 13**	**Coupling different methods**	**Chair: A.J.C. Crespo**
	Paper 13-1	Energy considerations in SPH/FEM coupling	C. Hermange, D. Le Touzé & G. Oger
	Paper 13-2	A partitioned approach for the coupling of SPH-ALE and FE methods for transient FSI problems with incompatible time-steps	J. Nunez Ramirez, J.-C. Marongiu, Z. Li & A. Combescure
	Paper 13-3	An hybrid Finite Volume - SPH method for incompressible flows	C. Gianguzzi, A. Monteleone & E. Napoli
12:55	**Lunch**		
14:25	**Session 14**	**Boundary conditions 2**	**Chair: A. Khayyer**
	Paper 14-1	Multi-node fixed ghost particles for SPH simulations	D.D. Meringolo, F. Aristodemo, P. Groenenboom & P. Veltri
	Paper 14-2	A new higher-order consistent wall boundary formulation for SPH	M. Schörgenhumer
	Paper 14-3	Derivation of Smoothed Particle Hydrodynamics Approximation of Boundary Value Problems Using Nonlocal Formalism	A.M. Tartakovsky, Q. Du & R. B. Lehoucq
	Paper 14-4	Semi-analytical wall boundary conditions for locally flat geometries	A. Mayrhofer, G. Bilotta & A. Hérault
15:30	**Session 15**	**New applications of SPH**	**Chair: P. Groenenboom**
	Paper 15-1	SPH Simulation of Co-Rotating Twin-Screw Extruders	I. Kondor, A. Eitzlmayr, J. Matić, G. Koscher & J. Khinast
	Paper 15-2	Comparative SPH and MD Modeling of Shock-Produced Ejecta from Grooved Metal Surface	M.S. Egorova, S.A. Dyachkov, V.V. Zhakhovsky & A.N. Parshikov
	Paper 15-3	A novel SPH reconstructed Immersed Boundary Method for partially immersed rigid boundaries and flexible membrane boundaries in 2-D	A.M. Nasar, B.D. Rogers, A. Revell & P.K. Stansby
	Paper 15-4	An alternative SPH formulation to model chemotaxis	D. Avesani, M. Dumbser & A. Bellin
16:35	**Closing and Ceremony for the Student Prize**		