

Parallel Sessions 1. (PS1)
Wednesday, 12th April, 11:00 - 12:40

Room G29	PS1.1. Advanced Applications 1, Chair: A. Bepalov	
11:00 - 11:20	G. Greto, S. Kulasegaram, C.H. Lee, A.J. Gil and J. Bonet	A new, meshless approach to fast solid dynamics: applications in metal plasticity
11:20 - 11:40	T. Jefferson, R. Davies	A model for simultaneous damage, healing and capillary flow in cementitious materials
11:40 - 12:00	N. Almuramady, F. M. Borodich	Simulations of sliding adhesive contact between microgear teeth in silicon-based mems work in a vacuum environment
12:00 - 12:20	A. Nassr, A.A. Javadi	Analysis of a plate using EPR-based self-learning finite element method
12:20 - 12:40	P. Kerfriden, S. Claus	A stable cut finite element method for multiple unilateral contact
Room G33	PS1.2. Failure, Fracture and Damage 1, Chair: C. Augarde	
11:00 - 11:20	W. Ai, C.E. Augarde	Explicit 3D crack modelling by the Cracking Particle Method
11:20 - 11:40	N.A. Hashim, W. M. Coombs, G. Hattori, C.E. Augarde	An implicit implementation of non-ordinary state-based peridynamics
11:40 - 12:00	R. Bird, W.M. Coombs, S. Giani	A discontinuous Galerkin hp-adaptive finite element method for brittle crack propagation
12:00 - 12:20	S. Alizadeh Sabet, R.de Borst	A finite element model for fault rupture
Room G34	PS1.3. Geomechanics 1, Chair: I. Jefferson	
11:00 - 11:20	R.A. Mukwiri, Y. Ghaffari Motlagh, W.M. Coombs, C.E. Augarde	Energy dissipation in granular materials in triaxial tests
11:20 - 11:40	J. González-Castejón, C. Smith	Layout optimization of soil reinforcement
11:40 - 12:00	E. Tatlıoğlu, M.B. Can Ülker, M. Ayşen Lav	Dynamic response of improved seabed soil - caisson foundation under earthquake loading
12:00 - 12:20	M.O. Ciantia, N. Zhang, M. Arroyo	Enhancing efficiency of DEM modeling of particle breakage
12:20 - 12:40	H. Al-Ateya, A. Ahangar Asr	Numerical investigation into the effect of cavity size and location on stability of earth dams
Room G36	PS1.4. Solids and Structures 1, Chair: S. Dirar	
11:00 - 11:20	H.J.T. Unwin, N. Sime, G.N. Wells	Multi-level Monte Carlo methods for large-scale eigenvalue problems
11:20 - 11:40	Y. Bing, M. Cortis, T. Charlton, W. Coombs, C.E. Augarde	Boundary representation and boundary condition imposition in the material point method
11:40 - 12:00	H. Khaki, J. Trevelyan	Isogeometric boundary element method based on adaptive hierarchical refinement of Nurbs
12:00 - 12:20	L. Wang, W.M. Coombs, C.E. Augarde, M. Brown	Implicit MPM with second-order convected particle domain interpolation
12:20 - 12:40	S. Kaewunruen, G. Pompeo, G. Bartoli	Blast simulations and transient responses of long-span glass roof structures: a case of London's railway station

Parallel Sessions 2 (PS2)
Wednesday, 12th April, 15:30 - 17:30

Room G29		
PS2.1. Biomechanics, Chair: D. Espino		
15:30 - 15:50	M. K. AL-SAAD, S. Kulasegaram, S.P.A. Bordas	Blood flow simulation using smooth particle hydrodynamics
15:50 - 16:10	K. Lewandowski, Ł. Kaczmarczyk, J. F. Marshall, C.J. Pearce	Numerical analysis of bone remodelling for equine 3rd metacarpal
16:10 - 16:30	E. García-Blanco, A. J. Gil, R. Ortigosa, C. Hean Lee	A polyconvex computational formulation for electro-activation in cardiac mechanics
16:30 - 16:50	Ł. Kaczmarczyk, K. Lewandowski, M Salmeron-Sanchez, C. Pearce	Cell force identification
16:50 - 17:10	H. M. Hasan, P. Nithiarasu	Semi implicit, locally conservative galerkin approach for modelling systemic blood circulation
17:10 - 17:30	J. M. Carson, M. J. Lewis, D. Rassi, R. Van Loon	Development of a 1D-0D cardiovascular model of pregnancy in humans
Room G33		
PS2.2. Failure, Fracture and Damage 2, Chair: A. Jefferson		
15:30 - 15:50	D. Mahdavian, A.A Javadi	Numerical analysis of flow parameters in hydraulic fracturing
15:50 - 16:10	E. G. Kakouris, S.P. Triantafyllou	Dynamic brittle fracture via material point method-a phase-field implementation
16:10 - 16:30	A. C. Hansen-Dörr, M. Kästner, R. de Borst	Self-similarity of a brittle fracture phase field model
16:30 - 16:50	B. Chen, C. Li, B. Ramos Barboza	Simulating evolution of fluid lag during hydraulic fracture propagation using finite element method
16:50 - 17:10	G. Hattori, J. Trevelyan	A non-ordinary state based peridynamics Implementation for anisotropic materials
17:10 - 17:30	F. M. Mukhtar, H.J. Al-Gahtani	Coupling enriched rbf and mfs for anti-plane shear cracks
Room G34		
PS2.3. Geomechanics 2, Chair: David Chapman		
15:30 - 15:50	M. Cortis, W. Coombs, C. Augarde, S. Robinson, A. Brennan, M. Brown	The modelling of soil-tool interaction using the material point method
15:50 - 16:10	S. Alzabeebee, D.N. Chapman, A. Faramarzi	Numerical investigation of the bedding factors associated with the design of buried concrete pipes subjected to traffic loading
16:10 - 16:30	M. Mehravar, O. Harireche, A. Faramarzi, S. Dirar	Soil conditions and piping criteria during suction caisson installation in layered seabed strata
16:30 - 16:50	M. O. Ciantia, Tom Shire	An efficient large-scale DEM model initialization procedure
16:50 - 17:10	R. Sauffisseau, A. Ahangar Asr	Stability analysis of geometrically non-homogeneous stratified slopes
Room G36		
PS2.4. Solids and Structures 2, Chair: M. Theofanous		
15:30 - 15:50	T.J. Charlton, W.M. Coombs, C.E. Augarde	On the implementation of gradient plasticity with the material point method
15:50 - 16:10	A. Homaioon Ebrahimi, P. Martinez-Vazquez, C. Baniotopoulos	Progressive collapse of braced irregular steel structures located in regions with different seismic activity
16:10 - 16:30	J. Trevelyan, S. Li	An accelerated black-box Fast Multipole Isogeometric Boundary Element Method for 3D elasticity
16:30 - 16:50	E.A.W. Maunder, J.P.M. de Almeida	Recovery of strong equilibrium in plates revisited
16:50 - 17:10	A. N. Nordas, L.P.F. Santos, B.A. Izzuddin, L. Macorini	Effective high-fidelity nonlinear analysis of metal sandwich panels using partitioned modelling
17:10 - 17:30	L. Santos, A. N. Nordas, B. A. Izzuddin, L. Macorini	Design-oriented mechanical models for local buckling assessment of sandwich panels with metal cores

Parallel Sessions 3 (PS3)
Thursday, 13th April, 10:30 - 12:30

Room G29	PS3.1. Contact and Error Estimation, Chair: R. Sevilla	
10:30 - 10:50	X. Du, A Kundu, P Kerfriden	Accuracy control and non-intrusive implementation of model order Reduction based on greedy sampling for elasto-dynamics
10:50 - 11:10	Z. Ullah, Ł. Kaczmarczyk, C. Pearce	Three-dimensional mortar contact formulation: an efficient and accurate numerical implementation
11:10 - 11:30	P. Bonilla, A. Kundu, P. Kerfriden	Efficiency analysis of patch size and type for error estimates based on implicit residual and local dirichlet patch problems.
11:30 - 11:50	X. Meng, J. Reboud , Ł. Kaczmarczyk	A-priori error estimator based hierarchical p adaptivity scheme for acoustic problems
11:50 - 12:10	G. Estrada-Rodriguez, H. Gimperlein	Generalized finite elements for blow up solutions to reaction-diffusion equations
12:10 - 12:30	P. A. H. Gadoury, I.M. Gitman	Hyperdimensional offsets and polynomial Refinement and integration scheme for Harmonic basis function finite elements
Room G33	PS3.2. Advanced Applications 2, Chair: A Quinn	
10:30 - 10:50	M.D. Aliyu, H. Chen	numerical modelling of geothermal reservoirs using the triple porosity-permeability approach
10:50 - 11:10	T. Adams, S. Giani, W.M. Coombs	level set based topology optimisation using high-order reinitialisation methods and the discontinuous Galerkin method
11:10 - 11:30	H. Zheng	numerical techniques for the boundary conditions in the local radial basis function collocation method
11:30 - 11:50	B.L. Freeman, P.J. Cleall, A. Jefferson	a numerical reduction scheme for multiple ion transport problems
11:50 - 12:10	R. Liang, Y. T. Feng, W. Yong	initial prestress optimisation of tensegrity structures based on artificial fish swarm algorithm
12:10 - 12:30	M. Samin, A. Faramarzi, I. Jefferson, O. Harireche	Optimisation of production well numbers in enhanced geothermal system
Room G34	PS3.3. Fluid Mechanics and Fluid-Structure interaction 1, Chair: H. Hemida	
10:30 - 10:50	S. Hewitt, L. Margetts, A. Revell	Parallel performance of an open source fluid structure interaction application
10:50 - 11:10	Y. Ghaffari Motlagh, A. Hassanpour, A. Bayly	Numerical investigation of particle-fluid flows: formulation, analysis and application
11:10 - 11:30	B. Ramos Barboza, C. Li	Numerical simulation of two-phase flow with Eulerian model in a channel
11:30 - 11:50	I.F. Zidane, G. Swadener, K. M. Saqr, X. Ma, M. F. Shehadeh	CFD investigation of transitional separation bubble characteristics on Naca 63415 airfoil at low Reynolds numbers
11:50 - 12:10	A. Farhan, A. Hassanpour, A. Burns, Y. Ghaffari Motlagh	Aerodynamic improvement of the horizontal axis wind turbine by using winglets
Room G36	PS3.4. Solids and Structures 3, Chair: O. Laghrouche	
10:30 - 10:50	S. Grosman , B.A. Izzuddin	Realistic modelling of irregular floor slabs under extreme loading
10:50 - 11:10	A. Safar, H. Wyatt , L.A. Mihai	Debonding of cellular structures under shear deformation
11:10 - 11:30	M. Abdul Latif, Y. T. Feng	A modified applied element method using adapative Gaussian springs for Elasto-plastic analysis of structures
11:30 - 11:50	H.X. Nguyen , T. P. Vo	Isogeometric analysis of small-scale plates with nonlinearity
11:50 - 12:10	L. Škec, G. Alfano, G. Jelenic	Modelling mixed-mode rate-dependent delamination in layered structures using geometrically nonlinear beam finite elements
12:10 - 12:30	M. Gaceša, G. Jelenic	Objective fixed-pole approach in geometrically exact 3d beams: implementational aspects

Parallel Sessions 4 (PS4)
Thursday, 13th April, 13:30 - 14:50

Room G29		
PS4.1. Fluid Mechanics and Fluid-Structure interaction 2, Chair: S Sharifi		
13:30 - 13:50	M. Al Manthari, P. Nithiarasu	Flow past a 3d elastic cantilever beam attached to a solid block
13:50 - 14:10	A. Al-Saadi, A. Hassanpour, Y. Ghaffari Motlagh, T. Mahmud	Simulation of Aerodynamic Behaviour of a Road Vehicle in Turbulent Flow
Room G33		
PS4.2. Failure, Fracture and Damage 3, Chair: C. Pearce		
13:30 - 13:50	A.S.M. Al-Azzawi, L.F. Kawashita, C.A. Featherston	A constitutive model for elastic-plastic behaviour and delamination damage in fibre metal laminates
13:50 - 14:10	L. Chen, R. de Borst	Adaptive Hierarchical Refinement in Isogeometric Analysis for Cohesive Fracture
14:10 - 14:30	I. Kolo, H. Askes, R. de Borst	Higher order gradient continua: an isogeometric approach
Room G34		
PS4.3. Wave and Electromagnetics, Chair: N. Cassidy		
13:30 - 13:50	D. Stark, H. Gimperlein	Boundary Elements and Mesh Refinements for the Wave Equation
13:50 - 14:10	T. R. Drevon, R. Sevilla, A. K. Shore	Numerical simulations of semi-conductor plasmonic nanolasers
14:10 - 14:30	B.D. Gilvey, G.A. Wagner, J. Trevelyan, M. Sead, J. Gao	Evaluation of highly oscillatory integrals in the Partition of Unity BEM for wave simulations in 2D
Room G36		
PS4.4. Solids and Structures 4, Chair: M. Mehravar		
13:30 - 13:50	O. I. Hassan, A.J. Gil, C.H. Lee, F. Auricchio, J. Bonet	An adapted artificial compressibility algorithm for nearly and truly incompressible large strain solid dynamics
13:50 - 14:10	G. Jelenic, N. Ceh, N. Bicanicy	Rocking of single and dual rigid-block systems subject to ground excitation: experimental and computational analysis of overturning conditions
14:10 - 14:30	L. Fan, C.E. Augarde, W.M. Coombs	The point collocation method with a local maximum entropy approach
14:30 - 14:50	A.H. Wordu, K.F. Tee	Prediction of burst pressure for steel pipes with gouge defect using numerical modelling