

## Wednesday 27<sup>th</sup> February 2013

**8:30 Registration (in the lobby)**

**9:30 Opening Session [Chair: Peter Kilpatrick] (McWilliam 1)**

**10:00 Keynote 1 (Kevin Hammond) [Chair: Peter Kilpatrick] (McWilliam 1)**

**11:00 Coffee**

### **Distributed and Network-based Computing 1 [Chair: Carmen Carrión] (McWilliam 1)**

11:30 Cost-efficient Project Management Based on Distributed Processing Model  
Grzegorz Pawiński and Krzysztof Sapiecha

12:00 VisIVO Workflow-Oriented Science Gateway for Astrophysical Visualization  
Eva Sciacca, Marilena Bandieramonte, Ugo Becciani, Alessandro Costa, Mel Krokos, Piero Massimino, Catia Petta, Costantino Pistagna, Simone Riggi, and Fabio Vitello

12:30 *Asynchronous Work Stealing on Distributed Memory Systems*  
Shigang Li, Jingyuan Hu, Xin Cheng and Chongchong Zhao

12:45 *Towards Modeling Interconnection Networks of Exascale Systems with OMNet++*  
Pedro Yebenes, Jesus Escudero-Sahuquillo, Pedro J. Garcia, and Francisco J. Quiles

### **Parallel Computing 1 [Chair: Amund Skavhaug] (McWilliam 2)**

11:30 Consistency Check through O-GEHL Predictors  
Ehsan Atoofian

12:00 Concurrent Collections on Distributed Memory: Theory Put Into Practice  
Frank Schlimbach, James C. Brodman and Kath Knobe

12:30 Performance Evaluation of Container-based Virtualization for High Performance Computing Environments  
Miguel G. Xavier, Marcelo V. Neves, Fabio D. Rossi, Tiago C. Ferreto, Timoteo Lange, and Cesar A. F. De Rose

### **Special Session on Grid, Parallel and Distributed Bioinformatics Applications [Chair: Ivan Merelli] (Middleton)**

11:30 Parallel stochastic simulators in system biology: the evolution of the species  
Marco Aldinucci, Maurizio Drocco, Fabio Tordini, Mario Coppo, and Massimo Torquati

12:00 Solving the Linearized Poisson-Boltzmann Equation on GPUs using CUDA  
Jose Colmenares, Jesus Ortiz, Sergio Decherchi, Amir Fijany and Walter Rocchia

12:30 *A Parallel Implementation of the Stau-DPP Stochastic Simulator for the Modelling of Biological Systems*  
Ettore Mosca, Ivan Merelli, Luciano Milanesi, Andrea Clematis, and Daniele D'Agostino

12:45 *Pairwise sequence alignment method for distributed shared memory systems*  
Alberto Montañola, Concepció Roig and Porfidio Hernández

**13:00 Lunch**

### **Distributed and Network-based Computing 2 [Chair: Marco Danelutto] (McWilliam 1)**

14:30 Design and Evaluation of a Virtual Experimental Environment for Distributed Systems  
Luc Sarzyniec, Tomasz Buchert, Emmanuel Jeanvoine and Lucas Nussbaum

15:00 An Evaluation of Efficient Leader Election Algorithms for Crash-Recovery Systems  
Carlos Gómez-Calzado, Mikel Larrea, Iratxe Soraluze, Alberto Lafuente and Roberto Cortiñas

15:30 *Power Grid Time Series Data Analysis with PIG on a Hadoop Cluster compared to MultiCore Systems*  
Felix Bach, Hueseyin K Çakmak, Heiko Maaß and Uwe Kühnapfel

15:45 *Bag of Tasks Rescheduling within Real Grid Environments: Different Approaches*  
Luis Tomás, Blanca Caminero, and Carmen Carrión

**Parallel Computing 2 [Chair: Frank Schlimbach] (McWilliam 2)**

- 14:30 Identifying Critical Code Sections in Dataflow Programming Models  
Vladimir Subotic, Jose Carlos Sancho, Jesus Labarta and Mateo Valero
- 15:00 Performance Traps in OpenCL for CPUs  
Jie Shen, Jianbin Fang, Henk Sips and Ana Lucia Varbanescu
- 15:30 *A Delegation Mechanism on Many-Core Oriented Hybrid Parallel Computers for Scalability of Communicators and Communications in MPI*  
Kazumi Yoshinaga, Yuichi Tsujita, Atsushi Hori, Mikiko Sato, Mitaro Namiki and Yutaka Ishikawa

**Special Session on GPU Computing and Hybrid Computing 1 [Chair: Didier El Baz] (Middleton)**

- 14:30 Optimization Techniques for Dimensionally Truncated Sparse Grids on Heterogeneous Systems  
Andrei Deftu and Alin Murarasu
- 15:00 3D bubbly flow simulation on the GPU - Iterative Solution of linear system using sub-domain and level-set deflation  
Rohit Gupta, Martin Bastiaan Van Gijzen and Cornelis Vuik
- 15:30 A GPU algorithm design for Resource Constrained Project Scheduling Problem  
Libor Bukata and Premysl Sucha

**16:00 Coffee****Advanced Algorithms and Applications 1 [Chair: Marco Aldinucci] (McWilliam 1)**

- 16:30 A Distributed Eigensolver for Loosely Coupled Networks  
Hana Strakova and Wilfried N. Gansterer
- 17:00 Efficient Cooperative Discovery of Service Compositions in Unstructured P2P Networks  
Angelo Furno and Eugenio Zimeo
- 17:30 *Impact of Data Structure Layout on Performance*  
Nuno Faria, Rui Silva and João L. Sobral
- 17:45 *Distributed Iterative Solution of Numerical Simulation Problems on Infiniband and Ethernet Clusters via the P2PSAP Selfadaptive Protocol*  
Serge Romaric Tembo, The Tung Nguyen and Didier El Baz

**Data Intensive Computing [Chair: Massimo Torquati] (McWilliam 2)**

- 16:30 Scalable Huge Directories through OSD+ Devices  
Ana Avilés-González, Juan Piernas and Pilar Gonzalez-Ferez
- 17:00 Access to the DARIAH Bit Preservation Service for Humanities Research Data  
Danah Tonne, Jędrzej Rybicki, Stefan E. Funk and Peter Gietz
- 17:30 *Scalability and Efficiency of Database Queries on Future Many-core Systems*  
Panayiotis Petrides, Andreas Diavastos, Constantinos Christofi and Pedro Trancoso

**Special Session on GPU Computing and Hybrid Computing 2 [Chair: Didier El Baz] (Middleton)**

- 16:30 ELMO: A User-Friendly API to Enable Local Memory in OpenCL Kernels  
Jianbin Fang, Ana Lucia Varbanescu, Jie Shen and Henk Sips
- 17:00 Parallelizing Broad Phase Collision Detection Algorithms for Sampling Based Path Planners  
Fuat Geleri, Oguz Tosun and Haluk Topcuoglu
- 17:30 *Paralysis: An Extensible Multi-Tiered Guidance Environment for Program Parallelization and Analysis*  
Stuart McCool, Ran Shao, Peter Milligan and Fatih Kurugollu

**19:00 Welcome Reception in the City Hall (Buses leaving hotel at 18:45)**

## Thursday 28<sup>th</sup> February 2013

### Special Session on Security in Networked and Distributed Systems 1 [Chair: Igor Kotenko] (McWilliam 1)

- 09:00 Analytical Visualization Techniques for Security Information and Event Management  
Evgenia Novikova and Igor Kotenko
- 09:30 Improved Reachability Analysis for Security Management  
Cataldo Basile, Daniele Canavese, Antonio Lioy and Christian Pitscheider

### Special Session on Cloud Computing on Infrastructure as a Service and its Applications 1 [Chair: TBA] (McWilliam 2)

- 09:00 Prediction-Based Dynamic Resource Allocation for Video Transcoding in Cloud Computing  
Fareed Jokhio, Adnan Ashraf, Sebastien Lafond, Ivan Porres and Johan Lilius
- 09:30 Block Level Storage Support for Open Source IaaS Clouds  
Sándor Ács, Mark Gergely, Peter Kacsuk and Miklos Kozlovsky

### Special Session on GPU Computing and Hybrid Computing 3 [Chair: Didier El Baz] (Middleton)

- 09:00 Using GPU for Multi-agent Soil Simulation  
Guillaume Laville, Kamel Mazouzi, Christophe Lang, Laurent Philippe, and Nicolas Marilleau
- 09:30 *Evaluation of successive CPUs/APUs/GPUs based on an OpenCL finite difference stencil*  
Henri Calandra, Romain Dolbeau, Pierre Fortin, Jean-Luc Lamotte and Issam Said

### 10:00 Keynote 2 (Alessandro Curioni) [Chair: Rainer Stotzka] (McWilliam 1)

### 11:00 Coffee

### Models and Tools [Chair: Rainer Stotzka] (McWilliam 1)

- 11:30 Genetic Algorithms Hierarchical Execution Control under a Global Application State Monitoring Infrastructure  
Adam Smyk and Marek Tudruj
- 12:00 Dynamic Proliferation of Agents in a Multiple Agent System  
Peter Lavin and Brian Coghlan
- 12:30 *A RISC building block set for structured parallel programming*  
Marco Danelutto and Massimo Torquati

### Special Session on On-Chip Parallel and Network-based Systems 1 [Chair: Nader Bagherzadeh] (McWilliam 2)

- 11:30 Fault Localizing End-to-End Flow Control Protocol for Networks-on-Chip  
Gert Schley, Nikolaos Batzolis and Martin Radetzki
- 12:00 High Performance Fault-Tolerant Routing Algorithm for NoC-based Many-Core Systems  
Masoumeh Ebrahimi, Masoud Daneshtalab and Juha Plosila
- 12:30 *Core Mapping into an Irregular Network on Chip - Features Extraction System for Automatic Speech Recognition Case Study*  
Piotr Dziurzanski and Tomasz Maka
- 12:45 *DyXYZ: Fully Adaptive Routing Algorithm for 3D NoCs*  
Masoumeh Ebrahimi, Xin Chang, Masoud Daneshtalab, Juha Plosila, Pasi Liljeberg, and Hannu Tenhunen

### Special Session on Dynamic and Reliable Multicore Systems 1 [Chair: Amir-Mohammad Rahmani] (Middleton)

- 11:30 Making Communication a First-class Citizen in Multicore Partitioning  
Poona Bahrebar, Ruxandra-Marina Florea, Wim Heirman, Leon Denis, Adrian Munteanu and Dirk Stroobandt

- 12:00 Enhancing Performance of 3D Interconnection Networks Using Efficient Multicast Communication Protocol  
Sanaz Rahimi Moosavi, Amir-Mohammad Rahmani, Pasi Liljeberg, Juha Plosila and Hannu Tenhunen
- 12:30 *QoS Manager for Energy Efficient Many-Core Operating Systems*  
*Simon Holmbacka, Dag Ågren, Sébastien Lafond and Johan Lilius*

**13:00 Lunch**

**Advanced Algorithms and Applications 2 [Chair: Francisco Almeida] (McWilliam 1)**

- 14:30 ReStream – A Replication Algorithm for Reliable and Scalable Multimedia Streaming  
Shabnam Ataee, Benoît Garbinato and Fernando Pedone
- 15:00 Parallel Computing of Kernel Density Estimation with Different Multi-core Programming Models  
Panagiotis D. Michailidis and Konstantinos G. Margaritis
- 15:30 Data Intensive Computing of X-ray Computed Tomography Reconstruction at the LSDF  
Xiaoli Yang, Thomas Jejkal, Halil Pasic, Rainer Stotzka, Achim Streit, Jos van Wezel and Tomy Dos Santos Rolo

**Special Session on On-Chip Parallel and Network-based Systems 2 [Chair: Masoud Daneshtalab] (McWilliam 2)**

- 14:30 Impact of Message Based Fault Detectors on Applications Messages in a Network on Chip  
Arne Garbade, Sebastian Weis, Sebastian Schlingmann, Bernhard Fechner and Theo Ungerer
- 15:00 A Reliability-Aware Multi-Application Mapping Technique in Networks-on-Chip  
Fatemeh Khalili and Hamid R. Zarandi
- 15:30 *Quality of Service Optimization for Network-on-Chip using Bandwidth-Constraint Mapping algorithm*  
*Azadeh Eskandari, Ahmad Khademzadeh, Nader Bagherzadeh and Majid Janidarmian*
- 15:45 *Power and Performance Efficient Partial Circuits in Packet-Switched Networks-on-Chip*  
*Nasibeh Teimouri, Mehdi Modarressi and Hamid Sarbazi-Azad*

**Special Session on Dynamic and Reliable Multicore Systems 2 [Chair: Amir-Mohammad Rahmani] (Middleton)**

- 14:30 Towards a Graceful Degradable Multicore-System by Hierarchical Handling of Hard Errors  
Sebastian Müller, Mario Schölzel and Heinrich Theodor Vierhaus
- 15:00 Task Migration for Dynamic Power and Performance Characteristics on Many-Core Distributed Operating Systems  
Simon Holmbacka, Wictor Lund, Sébastien Lafond and Johan Lilius
- 15:30 *Adaptive and Dynamic Quality-Aware Service Selection*  
*David J. M. Cavalcanti, Fábio N. Souza, and Nelson S. Rosa*

**16:00 Coffee**

**Advanced Algorithms and Applications 3 [Chair: Peter Milligan] (McWilliam 1)**

- 16:30 CACH-FTL: A Cache-Aware Configurable Hybrid Flash Translation Layer  
Jalil Boukhobza, Pierre Olivier and Stéphane Rubini
- 17:00 Merging results from overlapping databases in distributed information retrieval  
Shengli Wu and Jieyu Li
- 17:30 *Mapping Tightly-Coupled Applications on Volatile Resources*  
*Henri Casanova, Fanny Dufossé, Yves Robert and Frédéric Vivien*

**Special Session on Energy-Aware Systems [Chair: Matthias Schmidt] (McWilliam 2)**

- 16:30 Emulation-Based Test and Verification of a Design's Functional, Performance, Power, and Supply Voltage Behavior  
Norbert Druml, Manuel Menghin, Christian Steger, Reinhold Weiss, Andreas Genser, Holger Bock and Josef Haid

- 17:00 A Comprehensive Approach for a Power Efficient General Purpose Supercomputer  
Matthias Bach, Jan de Cuveland, Heiko Ebermann, Dominic Eschweiler, Jochen Gerhard, Sebastian Kalcher, Matthias Kretz, Volker Lindenstruth, Hans-Jürgen Lüdde, Manfred Pollok, and David Rohr
- 17:30 Analytical modeling of the energy consumption for the High Performance Linpack  
Alberto Cabrera, Francisco Almeida, Vicente Blanco and Domingo Giménez

**Systems and Architectures [Chair: Amund Skavhaug] (Middleton)**

- 16:30 Parallel Patterns for General Purpose Many-Core  
Daniele Buono, Marco Danelutto, Silvia Lametti and Massimo Torquati
- 17:00 Service Deployment Algorithms for Vertical Search Engines  
Veronica Gil Costa, Alonso Inostroza-Psijas, Mauricio Marin and Esteban Feuerstain
- 17:30 Heterogeneous Algorithmic Skeletons for FastFlow with Seamless Coordination over Hybrid Architectures  
Mehdi Goli and Horacio González-Vélez

**19:00 Conference Dinner in the Great Hall, Queen's University (by foot)**

## Friday 1<sup>st</sup> March 2013

**Special Session on Security in Networked and Distributed Systems 2 [Chair: Igor Kottenko] (McWilliam 1)**

- 09:00 Simulation of Protection Mechanisms Based on "Nervous Network System" against Infrastructure Attacks  
Igor Kottenko, Andrey Shorov and Evgenia Novikova
- 09:30 *Secure Abstraction with Code Capabilities*  
*Robbert Van Renesse, Håvard Johansen, Nihar Naigaonkar and Dag Johansen*

**Special Session on Cloud Computing on Infrastructure as a Service and its Applications 2**

**[Chair: Sándor Ács] (McWilliam 2)**

- 09:00 A cooperative approach for distributed task execution in autonomic clouds  
Michele Amoretti, Alberto Lluch Lafuente and Stefano Sebastio
- 09:30 *A Case Study on Algebraic Specification of Cloud Computing*  
*Dongmei Liu, Hong Zhu, and Ian Bayley*
- 09:45 *SecMon: A Secure Introspection Framework for Hardware Virtualization*  
*Xiaolong Wu, Yunwei Gao, Xinhui Tian, Ying Song, Bing Guo, Baiming Feng, and Yuzhong Sun*

**Special Session on Modeling, Simulation, and Optimization of Peer-to-peer Environments**

**[Chair: Didier El Baz] (Middleton)**

- 09:00 Investment strategies for credit-based P2P communities  
Mihai Capotă, Nazareno Andrade, Johan Pouwelse and Dick Epema
- 09:30 *Location-Aware Traffic Analysis of a Peer-to-Peer Streaming Application in a HSPA Network*  
*Philipp M. Eittenberger, Klaus Schneider and Udo R. Krieger*
- 09:45 *Fewest Common Hops (FCH): An Improved Peer Selection Approach for P2P Applications*  
*Humaira Ijaz, Sadia Saleem and Michael Welzl*

**10:00 Keynote 3 (Dimitrios Nikolopoulos) [Chair: Peter Milligan] (McWilliam 1)**

**11:00 Coffee**

**Special Session on Work in Progress [Chairs: Karl-Erwin Grosspietsch, Konrad Klöckner] (McWilliam 1)**

**10 min. presentation**

- 11:30 Data and Throughput Scalable Service-Oriented Datastore  
Krzysztof Sapiecha, Grzegorz Lukawski, Adam Krechowicz
- 11:40 Dynamic Optimization of System Resource: A Method and Experimental Analysis  
Rika Ito, Naoyuki Fujita
- 11:50 *Content Replication Algorithm Considering Popularity per File Size for Reducing Transmission Delay*  
Ryohei Obara, Shinji Sugawara, Katsunori Yamaoka
- 12:00 *Preliminary Evaluation of the Potential of Intracache-Line Optimization in Graph Processing*  
Noboru Tanabe, Sonoko Tomimori, Masami Takata, Kazuki Joe
- 12:10 *Adding Support for CUFFT Library to GENE*  
Jacob Narebsi, Piotr Bala
- 12:20 *A Rendering Unit Based On MPI*  
Weifeng Liu, Bin Gong
- 12:30 *Lossless Audio Compression Using Cumulative Prediction Error Elimination Block*  
Grzegorz Ulacha, Piotr Dziurzynski
- 12:40 *Improving the TrustedPals Framework Using Paxos*  
Christian Fernández-Campusano, Roberto Cortinas, Mikel Larrea
- 12:50 *Parallel Processing of Cryptographic Algorithms Based on Accelerating Hardware*  
Olga Kuznetsova, Alexey Krutikov, Tanya Silaeva
- 13:00 OpenFlow as a Security Enabling Solution in Large Scale Networked Systems  
Gabriella Carrozza, Vittorio Manetti, Stefano Avallone, Roberto Canonico, Antonio Marotta

**13:10 Lunch**

**Advanced Algorithms and Applications 4 [Chair: Daniele D'Agostino] (McWilliam 1)**

- 14:30 Distributed Ontology-Driven Focused Crawling  
Rodrigo Campos, Oscar Rojas, Mauricio Marin and Marcelo Mendoza
- 15:00 The HPC Testbed of the Italian Grid Infrastructure  
R. Alfieri, S. Arezzini, G. B. Barone, U. Becciani, M. Bencivenni, V. Boccia, D. Bottalico, L. Carracciolo, D. Cesini, A. Ciampa, A. Costantini, S. Cozzini, R. De Pietri, M. Drudi, A. Ghiselli, E. Mazzoni, S. Ottani, A. Venturini, and P. Veronesi

**Special Session on On-Chip Parallel and Network-based Systems 3 [Chair: Masoud Daneshtalab]**

**(McWilliam 2)**

- 14:30 CPNoC: On Using Constraint Programming in Design of Network-on-Chip Architecture  
Ayhan Demiriz, Nader Bagherzadeh and Abdulaziz Alhussien
- 15:00 *ILP-Based Communication Reduction for Heterogeneous 3D Network-on-Chips*  
Ismail Akturk and Ozcan Ozturk