

Journeys in Non-Classical Computation

GC-7 : progress report

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publication of the Challenge statement

Stepney, Braunstein, Clark, Tyrrell, Adamatzky, Smith,
Addis, Johnson, Timmis, Welch, Milner, Partridge.

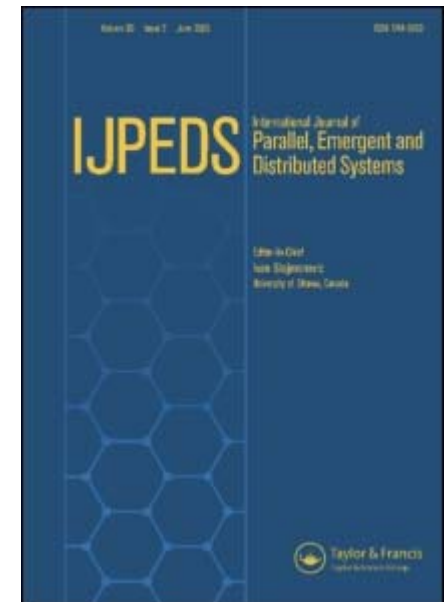
Journeys in Non-Classical Computation.

I: A Grand Challenge for computing research.

IJPEDS 20(1):5-19. March 2005

II: initial journeys and waypoints.

IJPEDS 21(2):97-125. April 2006



GC7 International Workshop: 18-19th April 2005

- hosted at York, sponsored by Microsoft Research
- 80 international participants, from
 - Canada, Denmark, France, Germany, Italy, New Zealand, Norway, Poland, Russia, Spain, Switzerland, UK, USA
 - position papers

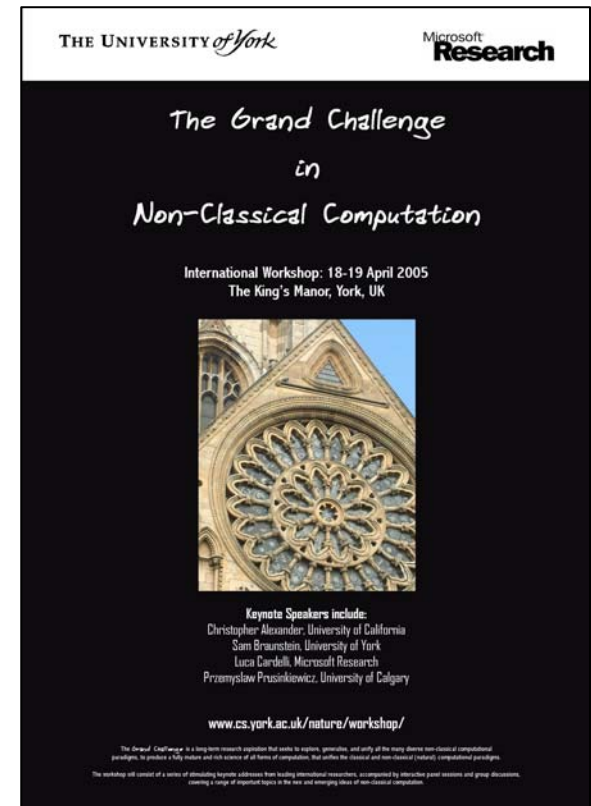
<http://www.cs.york.ac.uk/nature/workshop/>



GC7 International Workshop: 18-19th April 2005

keynote speakers:

- Christopher Alexander
 - *Harmony Seeking Computations*
- Sam Braunstein
 - *Quantum Computing*
- Luca Cardelli
 - *Abstract Machines of Systems Biology*
- Przemyslaw Prusinkiewicz
 - *Languages of Morphogenesis*



GC7 International Workshop: 18-19th April 2005

panel discussions

- non-classical substrates
 - computing with weird science
- from classical to non-classical
 - getting there from here: using classical ideas to bridge the gap
- bio-inspired computation
 - evolutionary, immune, cellular, ...
- engineering the future
 - emergence, complexity, ...
- the way forward

special issues of *IJUC*

- invited contributions from GC7 workshop participants

P.-A. Absil. *Continuous-time systems that solve computational problems*

J. Gorecki, J.N. Gorecka. *Information processing with chemical excitations*

J.-P. Banâtre, P. Fradet, Y. Radenac. *Programming Self-Organizing Systems with the Higher-Order Chemical Language*

S. Dasmahapatra, J. Werner, K.-P. Zauner. *Noise as a Computational Resource*

J. Timmis, M. Amos, W. Banzhaf, A. Tyrrell. *"Going Back to our Roots": Second Generation Biocomputing*

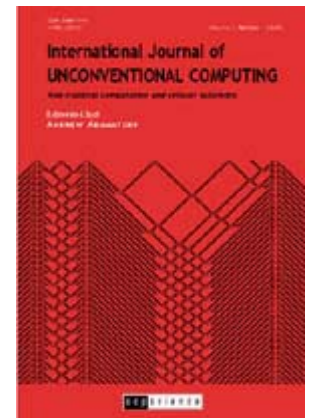
O. Michel, J.-P. Banâtre, P. Fradet, J.-L. Giavitto. *Challenging Questions for the Rationale of Non-Classical Programming Languages*

S. Abramsky, B. Coecke. *Physics from Computer Science*

M. Amos, D. A. Hodgson, A. Gibbons. *Bacterial self-organisation and computation*

C. Alexander. *Harmony-Seeking Computations*

+ four more papers still to be submitted



forthcoming events

- UC'06 : 5th International Conference on Unconventional Computation
 - 4th-8th September 2006, York, UK
<http://www.cs.york.ac.uk/nature/uc06/>
 - sponsored by: Microsoft Research, EPSRC, White Rose University Consortium, University of York
- Hypercomputation Workshop
 - 11th-13th September 2006, Sheffield, UK
 - sponsored by: EPSRC, White Rose University Consortium

