

Objective ICT-2011.9.6

FET Proactive



Unconventional Computation (UCOMP)



Objective ICT-2011.9.6: Unconventional Computation (UCOMP)

“The objective is to develop alternative approaches for situations or problems that are challenging or impossible to solve with conventional methods and models of computation (i.e. von Neumann, Turing).”

Typical examples:

- computing in vivo
- performing massively parallel computation

Relates to initiative: Bio-Chemistry based ICT (Call 4)

**Beyond existing initiatives: Quantum ICT (Call 9)
Neuro-Bio-Inspired Systems (Call 9)
Brain-Inspired ICT (Call 6)**



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Target outcomes:

- Foundations for a ***radically new kind*** of information processing technology based on ***unconventional*** paradigms.

Projects should:

- Pursue information processing, respecting the link with the physico-chemical embodiment
- Strengthen theoretical foundations
- Demonstrate key steps towards physical systems
- Develop an appropriate interface to conventional IT where appropriate

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Expected Impact:

- ***Foundations, approaches and proofs of concept*** for radically new kinds of computation
- Possible contributions ***beyond*** the area of ICT
- ***Global research cooperation***, in particular with participants from USA, Canada, New Zealand and Japan.

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Events:

- Proposer's day in Brussels in October
- Annual International Unconventional Computation conference : June 6—10, Turku, Finland

<http://www.math.utu.fi/projects/uc2011/venue.html>

Prof. Jarkko Kari, University of Turku (chair)

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- Budget: 15 MEuro
- Funding schemes: STREPs only
- Contact & pre-proposals:
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- Further reading:
 - UCOMP portal:
http://cordis.europa.eu/fp7/ict/fet-proactive/ucomp_en.html
 - Expert consultation workshop report:
<http://tinyurl.com/UCOMPbackground>

