
**4th INTERNATIONAL CONFERENCE ON THE THEORY AND PRACTICE OF NATURAL
COMPUTING**

TPNC 2015

Mieres, Spain

December 15-16, 2015

Organized by:

European Centre for Soft Computing

Research Group on Mathematical Linguistics (GRLMC)

Rovira i Virgili University

<http://grammars.grlmc.com/TPNC2015/>

AIMS:

TPNC is a conference series intending to cover the wide spectrum of computational principles, models and techniques inspired by information processing in nature. TPNC 2015 will reserve significant room for young scholars at the beginning of their career and particular focus will be put on methodology. The conference aims at attracting contributions to nature-inspired models of computation, synthesizing nature by means of computation, nature-inspired materials, and information processing in nature.

VENUE:

TPNC 2015 will take place in Mieres, in the north of Spain. The city is the heart of the coal mining industry in the country, today declining. The venue will be the European Centre for Soft Computing:

<http://www.softcomputing.es/>

SCOPE:

Topics include, but are not limited to:

- Theoretical contributions to:

amorphous computing
bacterial foraging
cellular automata
chaos and dynamical systems based computing
evolutionary computing
membrane computing
neural computing
optical computing
swarm intelligence

artificial chemistry

artificial immune systems
artificial life
complex adaptive systems
self-organizing systems

computing with DNA
nanocomputing
physarum computing
quantum computing and quantum information
reaction-diffusion computing

computing with words
developmental systems
fractal geometry
gene assembly in unicellular organisms
granular computation
intelligent systems
rough/fuzzy computing in nature
synthetic biology

- Applications of natural computing to:

algorithms
bioinformatics
control
cryptography
design
economics
graphics
hardware
human-computer interaction
knowledge discovery
learning
logistics
medicine
natural language processing
optimization
pattern recognition
planning and scheduling
programming
robotics
telecommunications
web intelligence

A flexible "theory to/from practice" approach would be the perfect focus for the expected contributions.

STRUCTURE:

TPNC 2015 will consist of:

- invited talks
- invited tutorials
- peer-reviewed contributions

- posters

INVITED SPEAKERS:

Agoston E. Eiben (VU University Amsterdam), EvoSphere: the World of Robot Evolution

John A. Smolin (IBM T.J. Watson Research Center, Yorktown Heights), Theory and Practice of Quantum Computing

Guy Theraulaz (Paul Sabatier University, Toulouse), Stigmergic Interactions and 3D Nest Construction in Ant Colonies

PROGRAMME COMMITTEE:

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David Wolpert (Santa Fe Institute, USA)

Ronald R. Yager (Iona College, New Rochelle, USA)
Shengxiang Yang (De Montfort University, Leicester, UK)
Xin-She Yang (Middlesex University, London, UK)
Hao Ying (Wayne State University, Detroit, USA)
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Mengjie Zhang (Victoria University of Wellington, New Zealand)
Qingfu Zhang (City University of Hong Kong, China)
William Zhu (Minnan Normal University, Zhangzhou, China)
Marek Żukowski (University of Gdansk, Poland)

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Carlos Martín-Vide (Tarragona, co-chair)
Daniel Sánchez (Mieres)
Gracián Triviño (Mieres)
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SUBMISSIONS:

Authors are invited to submit non-anonymized papers in English presenting original and unpublished research. Papers should not exceed 12 single-spaced pages (including eventual appendices, references, proofs, etc.) and should be prepared according to the standard format for Springer Verlag's LNCS series (see <http://www.springer.com/computer/lncs?SGWID=0-164-6-793341-0>).

Submissions have to be uploaded to:

<https://www.easychair.org/conferences/?conf=tpnc2015>

PUBLICATIONS:

A volume of proceedings published by Springer in the LNCS series will be available by the time of the conference.

A special issue of the journal *Soft Computing* (Springer, 2014 JCR impact factor: 1.271) will be later published containing peer-reviewed substantially extended versions of some of the papers contributed to the conference. Submissions to it will be by invitation.

REGISTRATION:

The registration form can be found at:

<http://grammars.grlmc.com/TPNC2015/Registration.php>

DEADLINES:

Paper submission: July 27, 2015 (23:59h, CET) – EXTENDED –
Notification of paper acceptance or rejection: August 28, 2015
Final version of the paper for the LNCS proceedings: September 4, 2015
Early registration: September 4, 2015
Poster submission: November 8, 2015
Late registration: December 1, 2015

Submission to the post-conference journal special issue: March 17, 2016

QUESTIONS AND FURTHER INFORMATION:

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