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**3rd INTERNATIONAL CONFERENCE ON THE THEORY AND PRACTICE OF NATURAL  
COMPUTING**

**TPNC 2014**

**Granada, Spain**

**December 9-11, 2014**

Organized by:

Soft Computing and Intelligent Information Systems (SCI<sup>2</sup>S)  
University of Granada

Research Group on Mathematical Linguistics (GRLMC)  
Rovira i Virgili University

<http://grammars.grlmc.com/tpnc2014/>

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**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 2014 will reserve significant room for young scholars at the beginning of their career. It 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 2014 will take place in Granada, in the region of Andalucía, to the south of Spain. The city is the seat of a rich Islamic historical legacy, including the Moorish citadel and palace called Alhambra.

**SCOPE:**

Topics of either theoretical, experimental, or applied interest include, but are not limited to:

\* Nature-inspired models of computation:

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

\* Synthesizing nature by means of computation:

- artificial chemistry
- artificial immune systems
- artificial life

\* Nature-inspired materials:

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

\* Information processing in nature:

- developmental systems
- fractal geometry
- gene assembly in unicellular organisms
- rough/fuzzy computing in nature
- synthetic biology
- systems biology

\* Applications of natural computing to: algorithms, bioinformatics, control, cryptography, design, economics, graphics, hardware, learning, logistics, optimization, pattern recognition, programming, robotics, telecommunications etc.

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

### **STRUCTURE:**

TPNC 2014 will consist of:

- invited talks
- peer-reviewed contributions

### **INVITED SPEAKERS:**

Kalyanmoy Deb (East Lansing, US), Multi-Criterion Problem Solving: A Niche for Natural Computing Methods

Marco Dorigo (Brussels, BE), Swarm Intelligence

Francisco Herrera (Granada, ES), Bioinspired Real Parameter Optimization: Where We Are and What's Next

### **PROGRAMME COMMITTEE:**

Hussein A. Abbass (Canberra, AU)

Uwe Aickelin (Nottingham, UK)

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Ponnuthurai N. Suganthan (Singapore, SG)  
Johan Suykens (Leuven, BE)  
El-Ghazali Talbi (Lille, FR)  
Jon Timmis (York, UK)  
Fernando J. Von Zuben (Campinas, BR)  
Michael N. Vrahatis (Patras, GR)  
Xin Yao (Birmingham, UK)

**ORGANIZING COMMITTEE:**

Adrian Horia Dediú (Tarragona)  
Carlos García-Martínez (Córdoba)  
Carlos Martín-Vide (Tarragona, co-chair)  
Manuel Lozano (Granada, co-chair)  
Francisco Javier Rodríguez (Granada)  
Florentina Lilica Voicu (Tarragona)

**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, etc.) and should be prepared according to the standard format for the 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=tpnc2014>

**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, 2012 JCR impact factor: 1.124) 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 period for registration is open from April 5 to December 9, 2014. The registration form can be found at:

<http://grammars.grlmc.com/tpnc2014/Registration.php>

**DEADLINES:**

Paper submission: July 17, 2014 (23:59h, CET)

Notification of paper acceptance or rejection: August 24, 2014

Final version of the paper for the LNCS proceedings: September 7, 2014

Early registration: September 7, 2014

Late registration: November 25, 2014

Submission to the post-conference journal special issue: March 11, 2015

**QUESTIONS AND FURTHER INFORMATION:**

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**POSTAL ADDRESS:**

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