
**9th-10th INTERNATIONAL CONFERENCE ON THE THEORY AND PRACTICE OF
NATURAL COMPUTING**

TPNC 2020 & 2021

Tsukuba, Japan

December 7-10, 2021

Co-organized by:

University of Tsukuba

Japanese Society for Artificial Life

Institute for Research Development, Training and Advice - IRDTA
Brussels / London

<https://irdta.eu/tpnc2020-2021/>

Submission deadline extended to August 3 !

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 2020 & 2021 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.

Previous events took place in Tarragona, Cáceres, Granada, Mieres, Sendai, Prague, Dublin and Kingston.

VENUE:

TPNC 2020 & 2021 will take place in Tsukuba, located northeast of Tokyo and the seat of a science city bearing witness of a place oriented to scientific innovation. The venue will be:

tba

SCOPE:

Topics include, but are not limited to:

- Theoretical contributions to:

affective computing
ambient intelligence
ant colony optimization
approximate reasoning
artificial immune systems
artificial life
cellular automata
cognitive computing
cognitive robotics
collective intelligence
combinatorial optimization
computational intelligence
computing with words
developmental systems
DNA computing
evolutionary algorithms
evolutionary computing
evolutionary game theory
fuzzy logic
fuzzy sets
fuzzy systems
genetic algorithms
genetic programming
global optimization
granular computing
heuristics
intelligent agents
intelligent control
intelligent manufacturing
intelligent systems
intelligent user interfaces
machine intelligence
membrane computing
metaheuristics
molecular programming
multiobjective optimization
neural networks
quantum communication
quantum computing
quantum information
quantum metrology
rough sets
soft computing

swarm intelligence
swarm robotics
unconventional computing

- Applications of natural computing to:

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

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

STRUCTURE:

TPNC 2020 & 2021 will consist of:

- invited talks
- peer-reviewed contributions
- posters

KEYNOTE SPEAKERS:

Yaochu Jin (University of Surrey), Morphogenetic Self-organization of Swarm Robots

Mehdi Khamassi (Sorbonne University), Adaptive Coordination of Model-based and Model-free Reinforcement Learning in Brains and Robots

Mark Liao (Academia Sinica), YOLOv4: The Most Accurate and Speedy Object Detector in the World

PROGRAMME COMMITTEE:

Andrew Adamatzky (University of the West of England, UK)
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Miin-Shen Yang (Chung Yuan Christian University, TW)
Yi Zhang (Sichuan University, CN)

ORGANIZING COMMITTEE:

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Yuri Lavinias (Tsukuba)
Sara Morales (Brussels)
Manuel Parra-Royón (Granada)
David Silva (London, co-chair)
Miguel A. Vega-Rodríguez (Cáceres)

SUBMISSIONS:

Authors are invited to submit non-anonymized papers in English presenting original and unpublished research. Papers should not exceed 12 single-spaced pages (all included) 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>).

Upload submissions to:

<https://easychair.org/conferences/?conf=tpnc20202021>

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 a major journal 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:

<https://irdta.eu/tpnc2020-2021/registration/>

DEADLINES (all at 23:59 CET):

Paper submission: August 3, 2021 - EXTENDED

Notification of paper acceptance or rejection: August 31, 2021

Final version of the paper for the LNCS proceedings: September 10, 2021

Early registration: September 10, 2021

Late registration: November 23, 2021

Submission to the journal special issue: March 10, 2022

QUESTIONS AND FURTHER INFORMATION:

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ACKNOWLEDGMENTS:

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Brussels/London