

Asian Conference on Membrane Computing (ACMC 2015)

November 12-15, 2015, Hefei, Anhui, China

The fourth Asian Conference on Membrane Computing (ACMC 2015) provides an open platform to bring together scholars worldwide to present their recent work on membrane computing. The **topics** of this conference are as follows (but not limited to):

Theoretical aspects of membrane computing

- Various variants of computing models: cell-, tissue- and neural-like P systems
- Computational power and computational efficiency of membrane computing models

- Small universal membrane computing models

Applications of membrane computing

- Robots controller design
- Modeling using P systems for biological systems, ecological systems, traffic systems, etc.

- Membrane computing models inspired optimization algorithms for various problems

- Other applications

Implementation of membrane computing models

- Software implementation
- Hardware implementation
- Biological implementation
- Other implementation

Bio-Inspired Optimization Techniques

- Genetic algorithm (inspired by DNA and process of natural selection)
- Membrane algorithms (Inspired by cells), etc.

ACMC 2015 also welcome the submissions from other research areas related to membrane computing or dealing with cellular computing such as DNA computing.

Conference Venue: Lakeside Hotel Hefei, Meeting Room 1, Building 6.
No.1 Rongcheng Road, Economic & Technological Development Zone, Hefei, Anhui

Programme Outline

Registration (Thursday, 12th November 2015)

14:00 - 17:30	Registration and authors' kits (please approach the registration desk at the lobby of the hotel)
18:00 – 20:00	Dinner (Lakeside Hotel, Building 3)

Technical Programme (Friday, 13th November 2015)

9:00 - 9:30	Opening Ceremony
9:30 - 10:30	Keynote Speech I
10:30 - 11:00	Coffee/Tea Break
11:00 - 12:00	Keynote Speech II
12:00 - 14:00	Lunch (QingYuan Hotel)
14:00 - 16:00	Technical Section
16:00 - 16:30	Coffee/Tea Break
16:30 - 18:30	Technical Section
19:00 - 21:00	Dinner (Lakeside Hotel, Building 3)

Technical Programme (Saturday, 14th November 2015)

9:00 - 10:00	Keynote Speech III
10:00 - 10:30	Coffee/Tea Break
10:30 - 11:30	Keynote Speech IV
11:30 - 12:10	Technical Section
12:10 - 14:00	Lunch (QingYuan Hotel)
14:00 - 16:00	Technical Section
16:00 - 16:30	Coffee/Tea Break
16:30 - 19:00	Technical Section
19:00 - 21:00	Dinner (Lakeside Hotel, Building 3)

Technical Programme (Sunday, 15th November 2015)

9:00 - 11:30	Technical Discussion
12:00 – 14:00	Lunch (QingYuan Hotel)

Detailed Programme

Thursday, 12th, November, 2015

- **14:00 - 17:30, Nov. 12**

Registration and authors' kits

Location: Lakeside Hotel Hefei, Building 3.

Note: You may also pick up your authors' kits on Nov. 13 at the registration desk during the coffee/tea break.

- **18:00 – 20:00, Nov. 12, Conference Dinner.**

Friday, 13th, November, 2015

- **09:00 - 09:30, Nov. 13**

Opening Ceremony

- **09:30 - 10:30, Nov. 13**

Plenary Talk A, Communication Complexity in Membrane Computing (Extended Abstract)

Speaker: Henry N. Adorna

- **11:00 – 12:00, Nov. 13**

Plenary Talk B, A Short Survey on Spiking Neural P Systems and Some Further Research Directions

Speaker: Tao Song

- **14:00 – 16:00, Nov. 13**

Technical Section

Session Chair 1: Xiangxiang Zeng

Paper 1(14:00-14:20): P Systems based Computing Polynomials: Design and Formal Verification

Authors: Weitao Yuan, Gexiang Zhang, Mario J. Perez-Jimenez, Tao Wang, and Zhiwei Huang

Paper 2(14:20-14:40): Deducing The Gene Pool of Avian Influenza Virus by Maximum Likelihood Algorithm

Authors: Kou Zheng, Chen Zhihua, Hu Kanghong, and Qiang Xiaoli

Paper 3(14:40-15:00): Rhombic Grid based Clustering Algorithm with Spiking Neural P Systems

Authors: Jie Xue and Xiyu Liu

Session Chair 2: Xiyu Liu

Paper 4(15:00-15:20): A MPPT Algorithm Based on Membrane System for Photovoltaic Systems under Partially Shaded Conditions

Authors: Juanjuan He, Jiao Fu, Jun Liu, and Jianhua Xiao

Paper 5(15:20-15:40): A family of P Systems based on Division Formula Table

Authors: Ping Guo, Lijiao Wei, Mingqiang Zhou

Paper 6(15:40-16:00): A P system for finding all solutions of the degree-constrained spanning tree problem

Authors: Ping Guo, Yuwen Zhong, Haizhu Chen, Mingqiang Zhou

● **16:30 – 18:30, Nov. 13**

Technical Section

Session Chair 3: Bosheng Song

Paper 7(16:30-16:50): Tissue P System Combined with Producer/Consumer and its Application in Micro-grid Economic Operation

Authors: Jun Ming, Jun Wang, and Ke Chen

Paper 8(16:50-17:10): Temporal Fuzzy Reasoning Spiking Neural P Systems with Real Numbers for Power System Fault Diagnosis

Authors: Kang Huang, Tao Wang, Yangyang He, Gexiang Zhang and Mario J.Perez-Jimenez

Paper 9(17:10-17:30): Spiking Neural P Systems with Structural Plasticity: Attacking the Subset Sum Problem

Authors: Francis George C. Cabarle, Nestine Hope S. Hernandez, Miguel Ángel Martínez-del-Amor

Session Chair 4: Hong Peng

Paper 10(17:30-17:50): A Novel Method for The Construction of Evolutionary Tree Based on EM Algorithm

Authors: Zhihua Chen, Yang Zhao, and Zheng Kou

Paper 11(17:50-18:10): Membrane-Inspired Evolutionary Algorithms for Finding Core Nodes

Authors: Yunyun Niu, Kan Zhang, Yanlei Wu, and Jianhua Xiao

Paper 12(18:10-18:30): Chomsky Control On Splicing P System

Authors: Kalpana Mahalingam, Prithwineel Paul, Raghavan Rama

- **19:00 – 21:00, Nov. 13, Conference Dinner.**

Saturday, 14th, November, 2015

- 09:00 - 10:00, Nov. 14

Plenary Talk C, Picture Languages and P Systems

Speaker: K.G. Subramanian

- 10:30 – 11:30, Nov. 14

Plenary Talk D, Computational prediction of miRNA and miRNA-disease relationship

Speaker: Quan Zhou

- 11:30 – 12:10, Nov. 14

Technical Section

Session Chair 5: Nestine Hope Hernandez

Paper 13(11:30-11:50): On the Communication Complexity of the Vertex Cover Problem and 3-Satisfiability Problem in ECP systems

Authors: Nestine Hope S. Hernandez, Richelle Ann B. Juayong, Sherlyne L. Francia, Denise Alyssa A. Francisco and Henry N. Adorna

Paper 14(11:50-12:10): Pictures and Chomsky Languages in Array P System*

Authors: Kalpana Mahalingam, Raghavan Rama, Williams Sureshkumar

- 14:00 – 16:00, Nov. 14

Technical Section

Session Chair 6: Jixiang Cheng

Paper 15(14:00-14:20): An Improved Dynamic Membrane Evolutionary Algorithm with Active Membrane for Constrained Engineering Design Problems

Authors: Jianhua Xiao, Juan-juan He, Ping Chen, and Yun-yun Niu

Paper 16(14:20-14:40): Efficient Solutions to All-SAT by P Systems with Active Membranes

Authors: Yueguo Luo, Zhongyang Xiong, Yegang Chen and Haijun Tan

Paper 17(14:40-15:00): AN IMPROVED CHAOS MOPSO ALGORITHM

Authors: Xuncaizhang, Xiaoxiao Wang, Ying Niu, and Guangzhao Cui

Session Chair 7: Ping Guo

Paper 18(15:00-15:20): A Multi-objective Membrane Algorithm Guided by Skin Membrane

Authors: Xingyi Zhang, Jun Li and Lei Zhang

Paper 19(15:00-15:40): Localized DNA circuits on DNA origami

Authors: Yanfeng Wang, Wenwen Zhang, Xin Ma, and Guangzhao Cui

Paper 20(15:40-16:00): A DNA Genetic Algorithm Inspired by Biological Membrane Structure

Authors: Wenke Zang, Minghe Sun

● **16:30 – 19:00, Nov. 14**

Technical Section

Session Chair 8: Prithwineel Paul

Paper 21(16:30-16:50): On String Languages Generated by Spiking Neural P Systems with a Generalized Use of Rules

Authors: Xiangrong Liu, Shiyue Xie, Stephen Leung

Paper 22(16:50-17:10): Logical Computation using Algorithmic Self-assembly of DNA Sub-tile

Authors: Yanfeng Wang, Xin Ma, Linqiang Pan, and Guangzhao Cui

Paper 23(17:10-17:30): Molecular Logic Gates Based on Localized DNA Strand Displacement

Authors: Yanfeng Wang, Wenwen Zhang, Xin Ma, and Guangzhao Cui

Session Chair 9: Williams Sureshkumar

Paper 24(17:30-17:50): Tabled Parallel Array P System with Application in Region-based Segmentation

Authors: Pradeep Isawasan, K.G. Subramanian, and Linqiang Pan

Paper 25(17:50-18:10): The model of signal response and monitoring in cascade self-assembly process

Authors: Guangzhao Cui, Wanli Zheng, Xuncaizhang, and Yanfeng Wang

Paper 26(18:10-18:30): Application of An Exchange-Tree Factor in The Two Stages of Algorithm for Solving Large-Scale Network Problem

Authors: Ying Ying Duan, Kang Zhou, Wen Bo Dong, and Qin Hong Fu

Paper 27(18:30-18:50): Exact Algorithm for Constrained Shortest Path Problem Based on Dichotomy

Authors: Shuang Qi Ge, Kang Zhou, Ying Ying Duan, and Wen Bo Dong

19:00 – 21:00, Nov. 14, Conference Dinner.

Sunday, 15th, November, 2015

- **09:00 - 11:30, Nov. 15**
Technical Discussion
Session Chair: Linqiang Pan

12:00 – 14:00, Nov. 15, Lunch.

Host Institution

Anhui University

Address: No.111 Rongcheng Road, Economic & Technological Development Zone,
Hefei, Anhui, China

Conference Venue: Lakeside Hotel Hefei

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Hefei, Anhui

Registration information

All attendees of ACMC2015 are kindly requested to register. Please note that in order to ensure the inclusion of all contributions in the pre-proceedings, at least one registration is required for each accepted paper. The registration fee includes the admission to the scientific sessions, the pre-proceedings, the coffee breaks, the lunches, the dinners, the welcome reception.