



11<sup>th</sup> Annual Conference on

# Theory and Applications of Models of Computation

11 – 13 April 2014

Venue: Vivekananda Auditorium, Anna University, Chennai

## TENTATIVE PROGRAMME SCHEDULE

### Friday, 11 April 2014

08.00 – 09.00	<b><u>Registration</u></b>
09.00 – 09.30	<b><u>Inaugural Session</u></b>  Dr. M Rajaram, Vice Chancellor, Anna University – Presides
09.30 – 11.00	<b><u>Invited Talk:</u></b> <b>Prof. Yaroslav D. Sergeyev</b> <b>“The Infinity Computer and numerical computations with infinities and infinitesimals”</b>
11.00 – 11.30	<b><u>Coffee / Tea</u></b>
11.30 - 13.00	<b><u>Research Papers: Algorithmics - I</u></b> <ol style="list-style-type: none"> <li><b>Title:</b> An Incremental Algorithm for Computing Prime Implicates in Modal Logic <b>Author:</b> Manoj K. Raut, India</li> <li><b>Title:</b> Self-Stabilizing Minimal Global Oensive Alliance Algorithm with Safe Convergence In an Arbitrary Graph <b>Author:</b> Yihua Ding, James Z. Wang, and Pradip K Srimani, United States</li> <li><b>Title:</b> Efficient Algorithms for the Label Cut Problems <b>Author:</b> Peng Zhang, China</li> <li><b>Title:</b> Polynomial-Time Algorithms for Subgraph Isomorphism in Small Graph Classes of Perfect Graphs <b>Author:</b> Matsuo Konagaya, Yota Otachi and Ryuhei Uehara, Japan</li> <li><b>Title:</b> Reversibility of Elementary Cellular Automata Under Fully Asynchronous Update <b>Author:</b> Biswanath Sethi, India; Nazim Fatès, France; Sukanta Das, India</li> </ol>
13.00 – 14.00	<b><u>LUNCH</u></b>

14.00 – 15.30	<b>Invited Talk:</b> <b>Dr. Venkatesan Chakaravarthy</b> <b>"Column Restricted Covering and Packing Integer Programs"</b>
15.30 – 16.00	<b>Coffee / Tea</b>
16.00 – 17.00	<b>Research Papers: Algorithmics - II</b> <ol style="list-style-type: none"> <li><b>Title:</b> A tight lower bound instance for k-means++ in constant dimension <b>Author:</b> Anup Bhattacharya, Ragesh Jaiswal, India; Nir Ailon, Israel</li> <li><b>Title:</b> A Dynamic Approach to Frequent Flyer Program <b>Author:</b> Rajiv Veeraraghavan, Rakesh Kashyap, Archita Chopde and Swapan Bhattacharya, India</li> <li><b>Title:</b> Finding optimal strategies of almost acyclic Simple Stochastic Games <b>Author:</b> David Auger, Pierre Coucheney, Yann Strozecki, France</li> <li><b>Title:</b> An improved Upper-bound for Rivest et al.'s Half-lie Problem <b>Author:</b> Bala Ravikumar and Duncan Innes, United States</li> <li><b>Title:</b> Set Cover, Set Packing and Hitting Set for Tree Convex and Tree-like Set Systems <b>Author:</b> Min Lu and Tian Liu, China; Weitian Tong and Guohui Lin, Canada; Ke Xu, China</li> </ol>

**Saturday, 12 April 2014**

09.00 – 10.30	<b>Invited Talk:</b> <b>Dr. Rajgopal Srinivasan</b> <b>"The Algorithmic Foundations of Biological Organisms"</b>
10.30 – 11.00	<b>Coffee / Tea</b>
11.00 – 12.30	<b>Research Papers: Complexity - I</b> <ol style="list-style-type: none"> <li><b>Title:</b> Generalized Finite Automata over Real and Complex Numbers <b>Author:</b> Klaus Meer and Ameen Naif, Germany</li> <li><b>Title:</b> A Bit-Encoding Phase Selection Strategy for Satisfiability Solvers <b>Author:</b> Jingchao Chen, China</li> <li><b>Title:</b> Finite State Incompressible Infinite Sequences <b>Author:</b> Cristian S. Calude, New</li> </ol>

	<p>Zealand; Ludwig Staiger, Germany and Frank Stephan, Singapore</p> <p>4. <b>Title:</b> The Parameterized Complexity of Domination-type Problems and Application to Linear Codes <b>Author:</b> David Cattaneo and Simon Perdrix, France</p> <p>5. <b>Title:</b> Modular Form Approach to Solving Lattice Problems <b>Author:</b> Yuan Tian, Rongxin Sun and Xueyong Zhu, China</p>
12.30 – 13.30	<b>LUNCH</b>
13.30 – 15.00	<p><b>Invited Talk:</b> <b>Prof. Angsheng Li</b> <b>“Security and Complexity of Networks”</b></p>
15.00 – 15.30	<b>Coffee / Tea</b>
15.30 – 17.00	<p><b>Research Papers: Complexity - II</b></p> <p>1. <b>Title:</b> Complexity Information Flow in a Multi-threaded Imperative Language <b>Author:</b> Jean-Yves Marion and Romain Pechoux, France</p> <p>2. <b>Title:</b> Space complexity of optimization problems in planar graphs <b>Author:</b> Samir Datta, India and Raghav Kulkarni, France</p> <p>3. <b>Title:</b> Approximation Algorithms for the Weight-Reducible Knapsack Problem <b>Author:</b> Marc Goerigk, Germany; Yogish Sabharwal, India; Anita Schöbel, Germany; and Sandeep Sen, India</p> <p>4. <b>Title:</b> On the Parameterized Complexity for Token Jumping on Graphs <b>Author:</b> Takehiro Ito, Marcin Kaminski, Hirotaka Ono, Akira Suzuki, Ryuhei Uehara and Katsuhisa Yamanaka Japan</p> <p>5. <b>Title:</b> More on Universality of Spiking Neural P Systems with Anti-Spikes <b>Author:</b> Venkata Padmavati Metta and Alica Kelemenova Czech Republic</p>
17.00 – 17.30	<b>Coffee / Tea</b>



Anna University, Chennai :: Computer Society of India, Chennai & Div II  
 IEEE Computer Society, Madras :: IEEE Prof. Communication Society, Madras  
 ACM India, Chennai Chapter :: SPIN, Chennai :: NASSCOM Sector Skills

*Cordially invite you for a special open session on*

## Saluting the Pioneers

**Alan M Turing:** Alan Mathison Turing was highly influential in the development of computer science, giving a formalisation of the concepts of "algorithm" and "computation" with the Turing machine, which can be considered a model of a general-purpose computer. Turing is widely considered to be the father of theoretical computer science and artificial intelligence.

**John von Neumann:** John von Neumann was a Hungarian-American pure and applied mathematician, physicist, and polymath. He made major contributions to a number of fields, including mathematics (foundations of mathematics, functional analysis, ergodic theory, geometry, topology, and numerical analysis), physics (quantum mechanics, hydrodynamics, and fluid dynamics), economics (game theory), computing (Von Neumann architecture, linear programming, self-replicating machines, stochastic computing), and statistics. He was a principal member of the Manhattan Project and the Institute for Advanced Study in Princeton (as one of the few originally appointed), and a key figure in the development of game theory and the concepts of cellular automata, the universal constructor, and the digital computer.

**Norbert Wiener:** Norbert Wiener was an American mathematician and philosopher. He was Professor of Mathematics at MIT. A famous child prodigy, Wiener later became an early researcher in stochastic and noise processes, contributing work relevant to electronic engineering, electronic communication, and control systems. Wiener is considered the originator of cybernetics, a formalization of the notion of feedback, with implications for engineering, systems control, computer science, biology, philosophy, and the organization of society.

*and a presentation on*

## “Questions Turing Left Behind”

*by*

**Prof. Barry S Cooper**

School of Mathematics, University of Leeds, UK

<http://www1.maths.leeds.ac.uk/~pmt6sbc/>

on Saturday, 12<sup>th</sup> Apr 2014 at 5.30 p.m.

at Vivekananda Auditorium, College of Engineering, Anna University, Chennai - 600025



**About the speaker:** Prof. Barry S Cooper is presently with the School of Mathematics, University of Leeds, UK. He is the Turing Centenary Advisory Committee Chairman and Project Leader for the "The Turing Centenary Research Project - Mind, Mechanism and Mathematics". Prof. Barry Cooper is the author and editor of numerous books, including *Computability Theory*, *New Computational Paradigms*, *Computability in Context*, and *Alan Turing - His Work and Impact*. He is a leading advocate of multidisciplinary research at the interface between incomputability and real world computability. His research interest include: Mathematical logic and applications to science and the humanities; In-computability in Nature; Clockwork or Turing U/universe; Computability and emergence; Definability as hyper-computational effect; and Alan Turing and Enigmatic Statistics

*Pl. join us at the dinner after the session at 8.00 p.m.*

To facilitate dinner logistics, pl. pre-register at <http://goo.gl/GTZKg> Confirmation will be sent by 10<sup>th</sup> Apr 2014.

CSI at 50 - Celebrating Golden Jubilee



**Sunday, 13 April 2014**

09.00 – 10.30	<b>Invited Talk:</b> <b>Dr. Aaron D. Jaggard</b> <b>"Formal Methods in Security"</b>
10.30 – 11.00	Coffee / Tea
11.00 – 12.30	<b><u>Research Papers: Models of Computation - I</u></b> 1. <b>Title:</b> Local-Global Approach to

	<p>Solving Ideal Lattice Problems  <b>Author:</b> Yuan Tian, Xueyong Zhu and Rongxin Sun, China</p> <p>2. <b>Title:</b> A Pseudo-Random Bit Generator Based on Three Chaotic Logistic Maps and IEEE 754-2008 Floating-Point Arithmetic  <b>Author:</b> Michael François, David Defour and Pascal Berthomé, France</p> <p>3. <b>Title:</b> A Categorical Treatment of Malicious Behavioral Obfuscation  <b>Author:</b> Romain Péchoux and Thanh Dinh Ta, France</p> <p>4. <b>Title:</b> A Personalized Privacy Preserving Method for Social Network  <b>Author:</b> Jia Jiao, Liu Peng, and Xianxian Li, China</p> <p>5. <b>Title:</b> Intersection Dimension of Bipartite Graphs  <b>Author:</b> Steven Chaplick, Czech Republic; Pavol Hell, Canada; Yota Otachi, Toshiki Saitoh and Ryuhei Uehara, Japan</p>
12.30 – 13.30	<b>LUNCH</b>
13.30 – 15.00	<b>Invited Talk:</b> <b>Prof. Barry S Cooper</b> <b>“Questions Turing Left Behind”</b>
15.00 – 15.30	<b>Coffee / Tea</b>
15.30 – 16.15	<b>Research Papers: Models of Computation - II</b> <ol style="list-style-type: none"> <li><b>Title:</b> Fine Tuning Decomposition Theorem for Maximum Weight Bipartite Matching  <b>Author:</b> Shibsankar Das and Kalpesh Kapoor, India</li> <li><b>Title:</b> On representations of abstract systems with partial inputs and outputs  <b>Author:</b> Ievgen Ivanov, France</li> </ol>
<b><u>16.15 – 17.00 : Panel Discussion – TAMC Steering Committee Members</u></b>	
17.00 – 17.30	<b>Valedictory Function</b> <b>TAMC Futures – 2015 &amp; 2016</b>

