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Information Processing in Cells and Tissues

9th International Conference, IPCAT 2012
Cambridge, UK, March 31 – April 2, 2012
Proceedings

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Preface

The 9th International Conference on Information Processing in Cells and Tissues took place from March 31 to April 2, 2012 at Trinity College, Cambridge. It followed previous events held in the Centro Stefano Franscini, Switzerland (2009), Oxford (2007), York (2005), Lausanne (2003), Brussels (2001), Indianapolis (1999), Sheffield (1997), and the inaugural IPCAT, which took place in Liverpool in 1995.

The original aim of IPCAT was to bring together a multidisciplinary group of scientists working on modelling cells and tissues, with a central theme of the nature of biological information and the ways it is processed in cells and tissues. Over the years, the conference has continued to attract scientists from many different disciplines, including biology, chemistry, computer science, electronics, mathematics, medicine and physics.

Computational modelling, in particular, has remained a prominent theme. This includes those using computational models and methods to understand biological systems, those developing new computational models and methods based on understanding of biological systems, and those applying these computational models and methods to problems in engineering, medicine and other fields.

For IPCAT 2012, we attempted to address the diversity of the IPCAT audience by assembling an Organizing Committee comprising biologists, computer scientists and engineers. To reflect the differing publication norms in different fields, this year we also gave authors the option of submitting either an extended abstract or a full paper, treating these equally during the review and ranking process. As a result of this, we accepted 13 full papers and 26 extended abstracts for presentation at the conference. Of these, 31 authors elected to have their work published in this volume of *Lecture Notes in Computer Science*.

To complement the technical program, we invited six renowned scientists to give keynote presentations. These each addressed particular aspects of information processing in biological cells and tissues:

- Madan Babu (MRC Laboratory of Molecular Biology, Cambridge, UK)
“Intrinsically Disordered Segments and the Evolution of Protein Half-Life”
- Leonid A. Mirny (Massachusetts Institute of Technology, Cambridge, USA)
“Higher-Order Chromatin Architecture: Bridging Physics and Biology”
- Karla Neugebauer (Max Planck Institute – CBG, Dresden, Germany)
“Dynamics of Transcription and RNA Processing in Living Cells”
- Yitzhak Pilpel (Weizmann Institute, Israel)
“Gene Expression Evolution Revealed from Lab Evolution Experiments”
- Pieter Rein ten Wolde (FOM Institute AMOLF, Amsterdam, The Netherlands)
“Multiplexing Biochemical Signals”
- Anne-Claude Gavin (EMBL, Heidelberg, Germany)
“Biological Networks from Proteins to Metabolites”

We would like to thank all the people involved in the organization and realization of IPCAT 2012, especially the authors, the invited speakers, and the members of the Program Committee, whose time and effort were central to the conference's success.

March 2012

Michael A. Lones
Stephen L. Smith
Sarah Teichmann
Felix Naef
James Alfred Walker
Martin Albrecht Trefzer

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