Contents

Part I Foundations of Complex Systems

1 Aggregation and Emergence in Agent-Based Models: A Markov Chain Approach .......................................................... 3
   Sven Banisch, Ricardo Lima, and Tanya Araújo

2 Chemically-Driven Miscible Viscous Fingering: How Can a Reaction Destabilize Typically Stable Fluid Displacements? ................................................................................. 9
   L.A. Riolfo, Y. Nagatsu, P.M.J. Trevelyan, and A. De Wit

3 Dynamical Localization in Kicked Rotator as a Paradigm of Other Systems: Spectral Statistics and the Localization Measure ................................................................. 15
   Thanos Manos and Marko Robnik

4 $A + B \rightarrow C$ Reaction Fronts in Hele-Shaw Cells Under Modulated Gravitational Acceleration ................................................................. 23
   Laurence Rongy, Kerstin Eckert, and Anne De Wit

5 Effect of Limited Stirring on the Belousov Zhabotinsky Reaction ........................................................................ 29
   Florian Wodlei and Mihnea R. Hristea

6 Size Distribution of Barchan Dunes by a Cellular Dune Model ................................................................. 35
   Atsunari Katsuki

7 Experimental Study of Buoyancy-Driven Instabilities Around Acid-Base Reaction Fronts ......................................................... 39
   L. Lemaigre, L.A. Riolfo, and A. De Wit

8 Dynamical Trap Effect in Virtual Stick Balancing ........................................................................ 43
   Arkady Zgonnikov, Ihor Lubashevsky, and Maxim Mozgovoy

9 Bounded Capacity of Human Cognition as a New Mechanism of Instability in Dynamical Systems ................................. 51
   Ihor Lubashevsky
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Complex Systems with Trivial Dynamics</td>
<td>Ricardo López-Ruiz</td>
</tr>
<tr>
<td>12</td>
<td>Comparative Analysis of Buoyancy- and Marangoni-Driven Convective Flows Around Autocatalytic Fronts</td>
<td>M.A. Budroni, L. Rongy, and A. De Wit</td>
</tr>
<tr>
<td>13</td>
<td>A Field Theory for Self-organised Criticality</td>
<td>Gunnar Pruessner</td>
</tr>
<tr>
<td>14</td>
<td>Chaos and Non-linear Tools in Website Visits</td>
<td>Maria Carmela Catone</td>
</tr>
<tr>
<td>15</td>
<td>Networks and Cycles: A Persistent Homology Approach to Complex Networks</td>
<td>Giovanni Petri, Martina Scolamiero, Irene Donato, and Francesco Vaccarino</td>
</tr>
<tr>
<td>16</td>
<td>Von Neumann Reproduction: Preliminary Implementation Experience in Coreworlds</td>
<td>Barry McMullin, Declan Baugh, and Tomonori Hasegawa</td>
</tr>
<tr>
<td>17</td>
<td>Modelling Complex Multi-particle Transport: From Smooth Flow to Cluster Formation</td>
<td>Ko van der Weele and Giorgos Kanellopoulos</td>
</tr>
<tr>
<td>18</td>
<td>Out-of-Equilibrium Dynamics in Systems with Long-Range Interactions: Characterizing Quasi-stationary States</td>
<td>Pierre de Buyl</td>
</tr>
<tr>
<td>19</td>
<td>Distance Ratio: An Exploratory Application to Compare Complex Networks</td>
<td>Nuno Caseiro and Paulo Trigo</td>
</tr>
<tr>
<td>20</td>
<td>Traveling and Stationary Patterns in Bistable Reaction-Diffusion Systems on Network</td>
<td>Nikos E. Kouvaris, Hiroshi Kori, and Alexander S. Mikhailov</td>
</tr>
<tr>
<td>21</td>
<td>Searching Shortest Paths on Weakly Dynamic Graphs</td>
<td>Jean-Yves Colin, Moustafa Nakechbandi, and A.S. Ould Cheikh</td>
</tr>
<tr>
<td>22</td>
<td>Emergence of Long Range Order in the XY Model on Diluted Small World Networks</td>
<td>Sarah De Nigris and Xavier Leoncini</td>
</tr>
<tr>
<td>23</td>
<td>Role Detection: Network Partitioning and Optimal Model of the Lumped Markov Chain</td>
<td>Maguy Trefois and Jean-Charles Delvenne</td>
</tr>
</tbody>
</table>
24 Kinetic Limit of Dynamical Description of Wave-Particle Self-consistent Interaction in an Open Domain ........................................ 159
Bruno Vieira Ribeiro and Yves Elskens

25 The Emergence of Pathological Constructors when Implementing the Von Neumann Architecture for Self-reproduction in Tierra ........................................ 165
Declan Baugh and Barry Mc Mullin

Part II Complexity, Information and Computation

26 A Preferential Attachment Model for Efficient Resources Selection in Distributed Computing Environments ........................................ 173
María Botón Fernández, Francisco Prieto Castrillo, and Miguel A. Vega-Rodríguez

27 The Challenge of Software Complexity ........................................ 179
Kevin Moore and Michel Wermelinger

28 The Internet Geographical PoP Level Maps ........................................ 189
Yuval Shavitt and Noa Zilberman

29 Practical Approach to Construction of Internal Variables of Complex Self-organized Systems and Its Theoretical Foundation ........................................ 195
Dalibor Štys, Petr Jizba, Tomáš Náhlík, Karina Romanova, Anna Zhyrova, and Petr Císař

30 An Efficient Simulator for Boolean Network Models ........................................ 201
Stefano Benedettini and Andrea Roli

31 Inferring Information Across Scales in Acquired Complex Signals ........................................ 209
Suman Kumar Maji, Oriol Pont, Hussein Yahia, and Joel Sudre

32 On the $\alpha$-Shiner–Davison–Landsberg Complexity Measure ........................................ 227
Thomas L. Toulias and Christos P. Kitsos

33 State Space Properties of Boolean Networks Trained for Sequence Tasks ........................................ 235
Andrea Roli, Matteo Amaducci, Lorenzo Garattoni, Carlo Pinciroli, and Mauro Birattari

34 Towards a Deeper Understanding of the Complex Behaviour Observed in the Distribution of Words in Written Texts ........................................ 241
Concepción Carretero-Campos, Marcelo A. Montemurro, Pedro Bernaola-Galván, Ana V. Coronado, and Pedro Carpena

35 Shared Information—New Insights and Problems in Decomposing Information in Complex Systems ........................................ 251
Nils Bertschinger, Johannes Rauh, Eckehard Olbrich, and Jürgen Jost

36 Probabilistic Real Swarm Logical Gate ........................................ 271
Yuta Nishiyama, Yukio-Pegio Gunji, and Andrew Adamatzky
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Author(s)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>The Role of Complex Systems in Public-Private Service Networks</td>
<td>Ameneh Deljoo, Marijn Janssen, and Y.-H. Tan</td>
<td>279</td>
</tr>
<tr>
<td>38</td>
<td>Revisiting von Neumann’s Architecture of Machine</td>
<td>Tomonori Hasegawa and Barry McMullin</td>
<td>287</td>
</tr>
<tr>
<td>39</td>
<td>Decimation of Fast States and Weak Nodes: Topological Variation</td>
<td>Irene Donato, Giovanni Petri, Martina Scolamiero, Lamberto Rondoni, and Francesco Vaccarino</td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>via Persistent Homology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part III</td>
<td>Prediction, Policy and Planning, Environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Characteristics of Seismic Networks in Spatial Scales</td>
<td>D.D. Kang, D.I. Lee, and K. Kim</td>
<td>305</td>
</tr>
<tr>
<td>41</td>
<td>You Are Who Knows You: Predicting Links Between Non-members of Facebook</td>
<td>Emöke-Ágnes Horvát, Michael Hanselmann, Fred A. Hamprecht, and Katharina A. Zweig</td>
<td>309</td>
</tr>
<tr>
<td>42</td>
<td>Vulnerability Analysis of Interdependent Infrastructure Systems</td>
<td>Gaihua Fu, Mehdi Khoury, Richard Dawson, and Seth Bullock</td>
<td>317</td>
</tr>
<tr>
<td>43</td>
<td>Human Security—A View Through the Lens of Complexity</td>
<td>Anthony J. Masys</td>
<td>325</td>
</tr>
<tr>
<td>44</td>
<td>Mitigating Risks of Event Avalanches Caused by Climate Change</td>
<td>Ljubomir Jankovic</td>
<td>337</td>
</tr>
<tr>
<td>45</td>
<td>Reliable Probabilities Through Statistical Post-processing of Ensemble Forecasts</td>
<td>Bert Van Schaeybroeck and Stéphane Vannitsem</td>
<td>347</td>
</tr>
<tr>
<td>47</td>
<td>An Agent-Based Model for the Analysis of the Energy Sources</td>
<td>Alessandro Filisetti, Stefano Bontempi, and Marco Setti</td>
<td>363</td>
</tr>
<tr>
<td>48</td>
<td>Complexity and Standards—Programming Innovation</td>
<td>Anna Andreyevna Zaytseva</td>
<td>371</td>
</tr>
<tr>
<td>49</td>
<td>The Right to a Due Deliberation, Mental Models of Judicial Reasoning and Complex Systems</td>
<td>Enrique Cáceres Nieto</td>
<td>383</td>
</tr>
</tbody>
</table>
50 MOSIPS Agent-Based Model for Predicting and Simulating the Impact of Public Policies on SMEs ........................................... 399
Federico Pablo-Martí, Antonio García-Tabuenca, María Teresa Gallo, Juan Luis Santos, María Teresa del Val, and Tomás Mancha

51 Integrating Collective Decision-Making Models and Agent-Based Simulation ...................................................... 415
Pablo Lucas and Diane Payne

52 Agent-Based Simulation for Complex Social Systems: Support for the Developer ...................................................... 421
Amineh Ghorbani and Virginia Dignum

Marta Weronika Wronikowska

Part IV Biological Complexity

54 Computing Birth-Death Fixation Probabilities for Structured Populations ...................................................... 437
Burton Voorhees

55 Modeling of Spatially Extended Delay-Induced Circadian Oscillations Synchronized by Cell-to-Cell Communications ...................................................... 445
Dmitry A. Bratsun and Andrey P. Zakharov

56 Topology Drives Calcium Wave Propagation in 3D Astrocyte Networks ...................................................... 453
Jules Lallouette and Hugues Berry

57 Modelling Spatial Dynamics of Plant Coastal Invasions ...................................................... 465
James T. Murphy and Mark P. Johnson

58 Dynamical Aspects of Information in Copolymerization Processes ...................................................... 471
Pierre Gaspard

59 Emergence of Gene Regulatory Networks Under Functional Constraints ...................................................... 477
Marcin Zagórski

60 Numerical Continuation of Equilibria of Cell Population Models with Internal Cell Cycle ...................................................... 483
Charlotte Sonck, Markus Kirkilionis, and Willy Govaerts

61 Bistability and Oscillations in a Skeleton Model for the Cyclin/Cdk Network Driving the Mammalian Cell Cycle ...................................................... 489
Claude Gérard and Albert Goldbeter
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>62</td>
<td><em>Centrality Clubs and Concepts of the Core: Decoding the Communicative Organisation of the Brain</em></td>
<td>Emma K. Towson, Petra E. Vértes, Sebastian E. Ahnert, and Edward T. Bullmore</td>
</tr>
<tr>
<td>63</td>
<td><em>A Broader Perspective About Organization and Coherence in Biological Systems</em></td>
<td>Martin Robert</td>
</tr>
<tr>
<td>64</td>
<td><em>Modelling Biological Form</em></td>
<td>Rebecca Cotton-Barratt and Markus Kirkilionis</td>
</tr>
<tr>
<td>65</td>
<td><em>A Novel Approach to Analysing Fixed Points in Complex Systems</em></td>
<td>Iain S. Weaver and James G. Dyke</td>
</tr>
<tr>
<td>66</td>
<td><em>Inquiring Protein Thermostability: Is Resistance to Temperature Stress a Rigidity/Flexibility Trade-off?</em></td>
<td>Maria Kalimeri, Simone Melchionna, and Fabio Sterpone</td>
</tr>
<tr>
<td>68</td>
<td><em>Can Hermit Crabs Perceive Affordance for Aperture Crossing?</em></td>
<td>Kohei Sonoda, Toru Moriyama, Akira Asakura, Nobuhiro Furuyama, and Yukio-P. Gunji</td>
</tr>
<tr>
<td>69</td>
<td><em>A Framework for Scalable Cognition</em></td>
<td>David R. Weinbaum</td>
</tr>
<tr>
<td>70</td>
<td><em>Multi-agent Simulation for Enzyme Kinetics</em></td>
<td>Viviane Galvão, Rafaela Galante, José G.V. Miranda, and Sandra A. Assis</td>
</tr>
</tbody>
</table>

**Part V Interacting Populations, Collective Behavior**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td><em>Fast and Accurate Decisions as a Result of Scale-Free Network Properties in Two Primate Species</em></td>
<td>Cédric Sueur, Andrew J. King, Marie Pelé, and Odile Petit</td>
</tr>
<tr>
<td>72</td>
<td><em>How to Turn an Available Data-Warehouse into Interactive Visualization Tools for Stakeholder’s Empowerment</em></td>
<td>Giuseppe Roccasalva and Andrea Valente</td>
</tr>
<tr>
<td>73</td>
<td><em>How Do Fish Use the Movement of Other Fish to Make Decisions?</em></td>
<td>Arianna Bottinelli, Andrea Perna, Ashley Ward, and David Sumpter</td>
</tr>
<tr>
<td>74</td>
<td><em>Self-organized Flocking with Conflicting Goal Directions</em></td>
<td>E. Ferrante, W. Sun, A.E. Turgut, M. Dorigo, M. Birattari, and T. Wenseleers</td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>75</td>
<td>Garden Ants Lasius Niger Perceive a Rotating Landmark</td>
<td>Mai Minoura, Kohei Sonoda, Tomoko Sakiyama, and Yukio-P. Gunji</td>
</tr>
<tr>
<td>76</td>
<td><em>In vivo, in silico, in machina</em>: Ants and Robots Balance Memory and Communication to Collectively Exploit Information</td>
<td>Melanie E. Moses, Kenneth Letendre, Joshua P. Hecker, and Tatiana P. Flanagan</td>
</tr>
<tr>
<td>77</td>
<td>Popularity and Similarity Among Friends: An Agent-Based Model for Friendship Development</td>
<td>Sma Abbas</td>
</tr>
<tr>
<td>78</td>
<td>Characterizing and Modeling Collective Behavior in Complex Events on Twitter</td>
<td>A.J. Morales, J. Borondo, J.C. Losada, and R.M. Benito</td>
</tr>
<tr>
<td>79</td>
<td>Majority Rule with Differential Latency: An Absorbing Markov Chain to Model Consensus</td>
<td>Gabriele Valentini, Mauro Birattari, and Marco Dorigo</td>
</tr>
<tr>
<td>80</td>
<td>Computational Modeling of Collective Behavior of Panicked Crowd Escaping Multi-floor Branched Building</td>
<td>Dmitry Bratsun, Irina Dubova, Maria Krylova, and Andrey Lyushnin</td>
</tr>
<tr>
<td>81</td>
<td>Spread of Disease During a Social Event</td>
<td>Lara Goscé and Anders Johansson</td>
</tr>
<tr>
<td>82</td>
<td>A Collective Binomial Learning Methodology</td>
<td>Xiao Perdereau</td>
</tr>
<tr>
<td>83</td>
<td>A Model for Social Network Evolution Affected by Individual Tolerance to Heterogeneity</td>
<td>Haoxiang Xia and Peng Liu</td>
</tr>
<tr>
<td>84</td>
<td>A Stochastic Lattice-Gas Model for Influenza Spreading</td>
<td>A. Liccardo and A. Fierro</td>
</tr>
<tr>
<td></td>
<td><strong>Part VI Social Systems, Economics and Finance</strong></td>
<td></td>
</tr>
<tr>
<td>85</td>
<td>CoopNet: A Social, P2P-Like Simulation Model to Explore Knowledge-Based Production Processes</td>
<td>Edoardo Mollona, Gian Paolo Jesi, and Matteo Vignoli</td>
</tr>
<tr>
<td>86</td>
<td>Analyses of Group Correlations in the KOSPI and the KOSDAQ</td>
<td>Jung Su Ko and Kyungsik Kim</td>
</tr>
<tr>
<td>87</td>
<td>‘Time is Money’: An Heterogeneous Agent Model for the FX</td>
<td>Sophie Béreau</td>
</tr>
<tr>
<td>88</td>
<td>Anomalous Metastability and Fixation Properties of Evolutionary Games on Scale-Free Graphs</td>
<td>Michael Assaf and Mauro Mobilia</td>
</tr>
</tbody>
</table>
89 Constrained Graph Resampling for Group Assessment in Human Social Networks ................................................. 723
Nicolas Tremblay, Pierre Borgnat, Jean-François Pinton, Alain Barrat, Mark Nornberg, and Cary Forest

90 Automated Synthesis of Reliable and Efficient Systems Through Game Theory: A Case Study ...................... 731
Mickael Randour

91 Evaluation of Latent Vocabularies Through Zipf’s Law and Heaps’ Law ......................................................... 739
Yukie Sano, Hideki Takayasu, and Misako Takayasuo

92 Complex Systems in Organizations and Their Influence on Human Resource Management ............................ 745
Tobias M. Scholz

93 Why First Movers May Fail: Global Versus Sequential Improvement of Complex Technological Artefacts ........ 751
Adrien Querbes-Revier and Koen Frenken

94 Market Opportunities, Customer Desires and Purchasing Selectiveness Modelling in Multi-layered Cellular Automata: A Study Case on Organizational Survivability ................................. 757
José V. Matos, Rui J. Lopes, and Yasmin Merali

95 When Pig Meets Pencil: The Beauty of Complexity in Industrial Networks .................................................... 769
Andreas Ligtvoet

96 Citation Networks Dynamics: A New Clustering Algorithm Using Recurrence Plots ........................................ 775
F. Strozzi, C. Colicchia, A. Sorrenti, and J.M. Zaldívar

97 Bio-inspired Political Systems: Opening a Field ......................................................................................... 785
Nathalie Mezza-Garcia

98 The Family at the Center of Interdisciplinary Research in Complex Systems: A Call for Future Research Programs .............................................................. 813
Ana Teixeira de Melo and Madalena Alarcão

99 Face-to-Face Discussions: Networking or Opinions Exchange? ......................................................... 819
Simone Righi and Timoteo Carletti

100 Evolution of Fairness and Conditional Cooperation in Public Goods Dilemmas ........................................... 827
Sven Van Segbroeck, Jorge M. Pacheco, Tom Lenaerts, and Francisco C. Santos

101 Patterns in the Occupational Mobility Network of the Higher Education Graduates. Comparative Study in 12 EU Countries ......................................................... 831
Eliza-Olivia Lungu, Ana-Maria Zamfir, and Cristina Mocanu
## Part VII Satellite Meeting: Complexity in Spatial Dynamics

102 Modeling Urban Patterns Across Geographical Scales by a Fractal Diffusion-Aggregation Approach .................................................. 841
   Roberto Murcio and Suemi Rodríguez-Romo

103 Generating Individual Behavioural Routines from Massive Social Data for the Simulation of Urban Dynamics .......................... 849
   Nick Malleson and Mark Birkin

104 Spatial Externalities Approach to Modelling the Preferential Attachment Process in Urban Systems ................................. 857
   Igor Lugo

## Part VIII Satellite Meeting: Space-Time Phases

105 Some Properties of Persistent Mutual Information .......................... 867
   Peter Gmeiner

## Part IX Satellite Meeting: Complex Dynamics in Cellular Systems

106 Demographic Fluctuations and Inherent Time Scales in a Genetic Circuit ................................................................. 879
   Hildegard Meyer-Ortmanns and Darka Labavić

## Part X Satellite Meeting: Information Processing with Recurrent Dynamical Systems: Theory and Experiment

107 Memory and Nonlinear Mapping in Reservoir Computing with Two Uncoupled Nonlinear Delay Nodes ............................ 895
   Silvia Ortín, Luis Pesquera, and José Manuel Gutiérrez

## Part XI Satellite Meeting: Complexity in the Real World—From Policy Intelligence to Intelligent Policy

108 What Networks to Support Innovation? Evidence from a Regional Policy Framework ................................................. 903
   Annalisa Caloffi, Federica Rossi, and Margherita Russo

109 Computational Complete Economy Models: A Model Class that Bridges the Gap Between Conventional Economic Modeling and Agent-Based Models ........................................ 913
   Davoud Taghawi-Nejad and Samuel G. Asfaha

## Part XII Satellite Meeting: Data-Driven Modeling of Contagion Processes

110 Malaria Incidence Forecasting and Its Implication to Intervention Strategies in South East Asia Region .......................... 919
   Ankit Bansal, Sarita Azad, and Pietro Lio
111 Studying Disease Dynamics Under Diverse Population Structures and Contagion Scenarios ........................................... 927
Iris N. Gomez-Lopez, Olivia Loza, and Armin R. Mikler

112 Stochastic Computational, Thermal, and Vertical Transmission Models to Simulate Dengue Persistence in Vector and Human Populations ..................................................... 935
Angel Bravo-Salgado, Armin R. Mikler, and Thiraphat Meesumram

Part XIII Satellite Meeting: Complex Behavior in Discrete Dynamical Systems

113 Biham-Middleton-Levine Traffic Model in Two-Dimensional Hexagonal Lattice ................................................................. 943
J. Carlos García Vázquez, Salvador Rodríguez Gómez, and Fernando Sancho Caparrini

114 Pesin’s Relation for Weakly Chaotic One-Dimensional Systems ................................................................. 949
Alberto Saa and Roberto Venegeroles

115 An Agent-Based Sorting Model for City Size and Wealth Distributions ........................................................................... 955
Steffen Eger

116 Characteristic Features of the Sustainable Strategies in the Evolvable Iterated Prisoners’ Dilemma ......................................... 969
Mieko Tanaka-Yamawaki and Ryota Itoi

117 Lyapunov Exponent: A Qualitative Ranking of Block Cipher Modes of Operation ................................................................. 979
Jeaneth Machicao, Anderson Marco, and Odemir Bruno

Part XIV Satellite Meeting: Self-organization, Management and Control

118 Improving Individual Accessibility to the City ................................................. 989
Arnaud Banos, Nicolas Marilleau, and MIRO Team

119 Passification Based Controlled Synchronization of Complex Networks ........................................................................... 993
Alexander Fradkov, Ibragim Junussov, and Anton Selivanov

Part XV Satellite Meeting: Complex Multiphase Systems

120 Inertia and Hydrodynamic Interactions in Dynamical Density Functional Theory ................................................................. 999
Benjamin D. Goddard, Andreas Nold, Nikos Savva, Grigoris A. Pavliotis, and Serafim Kalliadasis
121 Effective Macroscopic Stokes-Cahn-Hilliard Equations for Periodic Immiscible Flows in Porous Media .......................... 1005
Markus Schmuck, Gregorios A. Pavliotis, and Serafim Kalliadasis

122 Bound State Formation and Self-organization in Interfacial Turbulence ......................................................... 1011
Marc Pradas, Serafim Kalliadasis, Phuc-Khanh Nguyen, and Vasilis Bontozoglou

Part XVI Satellite Meeting: Information Processing in Complex Systems

123 Dynamics of Artificial Markets on Irregular Topologies ........ 1019
Ranaivo Mahaleo Razakanirina and Bastien Chopard

124 Multiple Levels in Self-adaptive Complex Systems: A State-Based Approach ....................................................... 1033
Luca Tesei, Emanuela Merelli, and Nicola Paoletti

125 Information Filtering and Learning: From Heuristics to Social Eudaimonia ......................................................... 1051
Pietro Liò, Luce Jacovella, Lucia Bianchi, and Viet Nguyen

Part XVII Satellite Meeting: Genomic Complexity

126 Modelling the Genetic and Epigenetic Signals in Colon Cancer Using a Bayesian Network .......................... 1059
Irina A. Roznovâť and Heather J. Ruskin

127 The Role of the Genome in the Evolution of the Complexity of Metabolic Machines ............................................ 1063
Claudio Angione, Giovanni Carapezza, Jole Costanza, Pietro Liò, and Giuseppe Nicosia

128 Can We Understand Parameter Values in the Human Genome? ................................................................. 1071
Wentian Li

Part XVIII Satellite Meeting: Critical Phenomena and Collective Behavior of Multi-particle Systems

129 Kinetic Theory of Two-Species Coagulation .................. 1079
Carlos Escudero

List of Participants ......................................................... 1083
Author Index ............................................................... 1093