

PREFACE

This Special Issue of Mathematical Biosciences and Engineering contains 11 selected papers presented at the Neural Coding 2014 workshop. The workshop was held in the royal city of Versailles in France, October 6-10, 2014. This was the 11th of a series of international workshops on this subject, the first held in Prague (1995), then Versailles (1997), Osaka (1999), Plymouth (2001), Aulla (2003), Marburg (2005), Montevideo (2007), Tainan (2009), Limassol (2010), and again in Prague (2012). Also selected papers from Prague were published as a special issue of Mathematical Biosciences and Engineering and in this way a tradition was started. Similarly to the previous workshops, this was a single track multidisciplinary event bringing together experimental and computational neuroscientists. The Neural Coding Workshops are traditionally biennial symposia. They are relatively small in size, interdisciplinary with major emphasis on the search for common principles in neural coding. The workshop was conceived to bring together scientists from different disciplines for an in-depth discussion of mathematical model-building and computational strategies. Further information on the meeting can be found at the NC2014 website at https://colloque6.inra.fr/neural_coding_2014. The meeting was supported by French National Institute for Agricultural Research, the world's leading institution in this field.

Understanding how the brain processes information is one of the most challenging subjects in neuroscience. The papers presented in this special issue show a small corner of the huge diversity of this field, and illustrate how scientists with different backgrounds approach this vast subject. The diversity of disciplines engaged in these investigations is remarkable: biologists, mathematicians, physicists, psychologists, computer scientists, and statisticians, all have original tools and ideas by which to try to elucidate the underlying mechanisms. In this issue, emphasis is put on mathematical modeling of single neurons. A variety of problems in computational neuroscience accompanied with a rich diversity of mathematical tools and approaches are presented. We hope it will inspire and challenge the readers in their own research.

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Guest Editors:
Susanne Ditlevsen and Petr Lansky