PREFACE

Ninety two years after random matrices first appeared in a research paper by the Scottish mathematician and agricultural statistician John Wishart, they have been applied in numerous areas, from nuclear physics and telecommunications, to statistical analysis of biological systems and financial markets. As we are settling ourselves in the information age, with the vast amounts of data being produced constantly and the growing complexity of information based systems, Random Matrix Theory seems to be more relevant than ever. For instance, when machine learning, and in particular deep, artificial neural networks, are finding application across almost all the industries, including agriculture, random matrices are being used to study the properties of deep neural networks themselves.

Guided by this perspective, *Random Matrix Theory: Applications in the Information Era* was held at the end of April 2019, at the medieval centre of Kraków, in Collegium Maius, the oldest building of our Alma Mater, the Jagiellonian University. The main aim of the conference (the 5^{th} in the series) was to explore the intersection of Random Matrix Theory and Machine Learning, Big Data, and more generally, massive information flows. As in the previous 'Matrix' meetings, we aimed to encourage informal discussion and the exchange of expertise between scientists using Random Matrix Theory in various areas of research spanning the above and other topics. This volume is comprised of some of the works presented at the conference.

The organisation of the conference, as well as the publication of this volume would not be possible without the help of its participants, the friends involved and various organisations. First we would like to thank the editors of *Acta Physica Polonica B*, as well as the governing bodies of the Jagiellonian University, the Faculty of Mathematics and Computer Science and the Faculty of Physics, Astronomy and Applied Computer Science. Traditionally, the conference was organised under the auspices of the Mark Kac Complex Systems Research Center. The funding came from the resources of the Marian Smoluchowski Institute of Physics and from the grant of the Dean of the Faculty of Physics, Astronomy and Applied Computer Science. Finally, we want to express our gratitude to all those involved in the organization of this event, namely Michał Mandrysz, Zbigniew Drogosz, Wojciech Tarnowski, Przemysław Witaszczyk and in particular Ewa Witkowska who, as always, provided for its smooth operation and the much appreciated family atmosphere.

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