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The International Congress on Mathematical Physics (ICMP), on its three year cycle, is the most important conference of the International Association of Mathematical Physics. The XIXth ICMP was held in Montreal, Canada, July 23–28, 2018. The organizational aspects of the ICMP were very successfully handled by the Canadian Mathematical Society (CMS). This was the first time that the congress has taken place in North America since 1983, when it was held in Boulder, Colorado. Following a tradition started in London in 2000, the ICMP 2018 was preceded by the Young Researchers Symposium (YRS), July 20–21, 2018. In addition, seven satellite meetings were organized in Banff, Toronto, Montreal, and Waterloo in the weeks preceding and following the congress.

The ICMP and YRS were attended by 594 registered participants, out of which 121 were from Canada. The organization of the ICMP followed the traditional route, with 16 plenary speakers and 12 topical sessions. Each topical session had six speakers selected by two organizers. The session organizers, as well as the plenary speakers, were selected by the International Scientific Committee of the ICMP. In addition, a total of ten prize lectures were presented at the congress.

One novelty of the ICMP 2018 was two highly successful public lectures. The first was given by Rainer Weiss (MIT, Nobel Prize in Physics 2017) on gravitational wave astronomy and Ligo's experimental discovery of gravitational waves. The second one was given by Elliott Lieb (Princeton University) on the topic of entropy. Another novel aspect of the ICMP 2018 was the large number of contributed talks (119), which were given in ten parallel evening sessions on July 24 and 27. Combined with YRS, where 66 talks were given by junior participants, the total number, variety, and quality of contributed talks significantly added to the success of the ICMP.

The present volume of the Journal of Mathematical Physics contains an overview of the key topics covered at the ICMP 2018. Plenary speakers, invited session speakers, as well as prize lectures were invited to contribute an article to this volume. The volume consists of 29 articles covering a broad range of topics in Mathematical Physics, ranging from dynamical systems, integrable systems, and spectral theory to equilibrium and nonequilibrium statistical mechanics and quantum field theory. It thus represents an overview of the state of the art of many of the directions of the current research in this field.

We are looking forward to the next ICMP, which will be held in Geneva, Switzerland, in August 2021.