# PREFACE

In a time where scientific meetings tend to become impersonal reunions of hundreds of specialists in one or various disciplines, with the inherent obstruction to a profitable intercourse, the existence of a series of high-level conferences of modest size that promote a personal interaction between participants is not only welcomed, but further constitutes nowadays a privilege. Such has always been the leading philosophy of the series "International Conference on Geometry, Integrability and Quantization", that held its twentieth edition in a convivial atmosphere between June 2-7, 2018 at the Koral Hotel in the Sts. Constantine and Elena resort in Varna, Bulgaria. It is a great success that for twenty consecutive years this multidisciplinary colloquium has maintained a high academic level and attracted the interest of pure and applied mathematicians and physicists, further serving as a catalyser for scientific collaboration between geographically dispersed scholars that in larger meetings could possibly not have shared their expertise and interests.

In this context, it is with great pleasure that we present the Proceedings of the Twentieth International Conference on Geometry, Integrability and Quantization. This conference series, promoted by the Institute of Biophysics of the Bulgarian Academy of Sciences, was organized on this ocassion in collaboration with the Technical University of Varna and the Tokyo University of Science. The colloquium was attended by participants from Europe, Africa, Asia and the Americas, the contributions of which covered a wide spectrum of topics such as Cosmology, General Relativity, Differential and Symplectic Geometry, Lagrangian dynamics, Noncommutative Field Theory and Quantum Mechanics.

Two Lecture Courses delivered by two distinguished speakers were programmed for this edition of the conference, drawing a lot of interest among the audience:

1. Vladimir Kisil (University of Leeds) on *The Heisenberg Group and* $\mathrm{SL}_2(\mathbb{R})$*: A Surviving Pack for Everyone*
2. Jerzy Kijowski (Polish Academy of Sciences) on *Trautman-Bondi Energy and its Universality.*

Supplemental to these Lectures, a number of Plenary Talks focused on more specific current research problems and developments, the topics of which covered the three main conference areas, given respectively by

1. Mayeul Arminjon: *Interaction Energy of a Charged Medium and its EM Field in a Curved Spacetime*
2. Rutwig Campoamor-Stursberg: *Systems with a Position-Dependent Mass and Symmetry-Preserving Inverse Problems in Lagrangian Dynamics*