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Victor G. Kac · Peter J. Olver
Pavel Winternitz · Teoman Özer
Editors

Symmetries, Differential Equations and Applications

SDEA-III, İstanbul, Turkey, August 2017

 Springer

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Preface

This book consists of the selected, peer-reviewed, and revised papers from the **III. International Conference on Symmetries, Differential Equations and Applications (SDEA-III, www.sdea3.org)**, which was held from August 14 to 17, 2017, in İstanbul Technical University, İstanbul, Turkey.

The first SDEA-I was held in Johannesburg, South Africa, in 2012, dedicated to the Bicentenary of Evariste Galois. The second SDEA-II was held in Islamabad, Pakistan, in 2014, dedicated to James Clerk Maxwell's Theory of Electromagnetism.

SDEA-III was the third conference in the series and dedicated to the Centenary of Noether's Theorem proven by the prominent German mathematician Emmy Noether. The main aim of the conference was to concentrate on many of the recent important advances in the applications of Lie groups, including a wide area of topics in interdisciplinary studies ranging from mathematical physics to financial mathematics. The topics discussed in SDEA-III included Lie theory and symmetry methods in differential equations, Lie algebras and Lie pseudogroups, supersymmetry and super-integrability, representation theory of Lie algebras, classification problems, conservation laws, and geometrical methods.

We are convinced that SDEA-III was a very successful conference that provided a productive forum for academic researchers, both junior and senior, and students to discuss and share the latest developments in the theory and applications of Lie symmetry groups. The conference included 18 parallel sessions with 76 presentations, and 66 speakers, which included the 13 invited speakers listed below, from 16 different countries, as well as 17 poster representations during the 4 days it ran.

The invited speakers of SDEA-III were Prof. Mohammad Akbar (*University of Texas at Dallas, USA*), Prof. Alexei Cheviakov (*University of Saskatchewan, Canada*), Prof. Metin Gürses (*Bilkent University, Turkey*), Prof. Victor G. Kac (*MIT, USA*), Prof. Varga Kalantarov (*Koç University, Turkey*), Prof. Masood Khalique (*North-West University, South Africa*), Prof. Sergey Meleshko (*Suranaree University of Technology, Thailand*), Prof. Maria Concepcion Muriel (*University of Cádiz, Spain*), Prof. Maria Clara Nucci (*University of Perugia, Italy*), Prof. Peter J. Olver (*University of Minnesota, USA*), Prof. Kamal Soltanov (*Hacettepe University,*

Turkey), Prof. Greg Reid (*University of Western Ontario, Canada*), and Prof. Alexandre Vinogradov (*Levi-Civita Institute, Italy*).

The conference sponsors were İstanbul Metropolitan Municipality, Sarıyer Municipality, İstanbul Technical University, International Mathematical Union, Turkish Airlines, and The Scientific and Technological Research Council of Turkey. SDEA-III was organized in cooperation with SIAM, the Society for Industrial and Applied Mathematics.

As the editors, we personally wish to express our gratitude to the authors of the papers in this book, and to all participants for their contributions in this conference. We hope you will enjoy reading it and find its contributions of interest.

Cambridge, USA
Minneapolis, USA
İstanbul, Turkey
Montréal, Canada

Victor G. Kac
Peter J. Olver
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