Preface

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This volume represents the proceedings of the first edition of the international conference entitled Recent Trends in Pure and Applied Mathematics (TREPAM 2017), held in Alba-Iulia, Romania, from July 31 - August 4, 2017. This volume contains 14 (5-8 pages long) papers on Discrete Mathematics, which were accepted for publication after peer review. Papers accepted for publication in Pure Mathematics were collected in a separate volume.

The aim of the conference was to bring together leading academics, scientists, researchers and professionals to exchange and share their experiences and research results in several fields of pure and applied mathematics and their applications in science and technology. TREPAM 2017 was organized at the Faculty of Exact Sciences of the "1 Decembrie 1918" University of Alba Iulia (Romania), in collaboration with the University of Derby (United Kingdom) and National University of Malysia.

A total of 99 abstracts were submitted to TREPAM 2017, of which 72 contributions were selected for presentation across 12 parallel sessions.

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TREPAM 2017 had the honor to host 6 Plenary Speakers:

- Ravi P. Agarwal (Texas A&M University-Kingsville, U.S.A.)
  "Why Proofs Can Never Be Exact"

- Bashir Ahmad (King Abdulaziz University, Saudi Arabia)
  "Fractional-Order Differential Equations with Anti-periodic Boundary Conditions"

- Robert Finn (Stanford University, U.S.A.)
  "Edme Mariottes Legacy to Capillarity Theory"

- Marlene Frigon (Universit de Montral, Canada)
  "Existence and multiplicity results for systems of differential equations"

- Anthony To-Ming Lau (University of Alberta, Canada)
  "Fixed point set for semigroup of mappings and harmonic analysis"

- Adrian Petrusel (Babes-Bolyai University Cluj-Napoca, Romania)
  "On the multi-valued contraction principle"

The event also had 17 Main Speakers:

- Mircea Balaj (University of Oradea, Romania)
  "Common Fixed Point Theorems For Set-Valued Mapping"

- Alberto Cabada (Universidade de Santiago de Compostela, Spain)
  "Green's Functions and Spectral Theory for the Hill's Equation"

- Ion Chiţescu (University of Bucharest, Romania)
  "Generalized Measures and Integrals"

- Maslina Darus (Universiti Kebangsaan Malaysia, Malaysia)
  "Univalent Function Theory and Future Work"

- Vasile Drăgan (Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Romania)
  "Exponential Stability in Mean Square of Stochastic Linear Systems Modeled by Singularly Perturbed Ito Differential equations with Markovian Jumping"

- Cristina Flaut (Universitatea Ovidius Constanta, Romania)
  "Some remarks about the levels and sublevels of algebras obtained by the Cayley-Dickson process"

- Mikil Foss (University of Nebraska-Lincoln, U.S.A.)
  "Some Recent Results for Nonlocal Variational Problems"

- Leszek Gasinski (Jagiellonian University, Poland)
  "Brezis-Nirenberg type theorems on local minimizers"

- Erdal Karapinar (Atilim University, Turkey)
  "Advantages and disadvantages for the researchers in metric fixed point theory"
- Giuseppe Marino (Università della Calabria, Italy)
  "A new type Mann algorithm built by differential equations"
- María Victoria Otero Espinar (Universidade de Santiago de Compostela, Spain) *"A variational approach to Boundary Value Problems"*
- Abdullah Ozbekler (Atilim University, Turkey)
  "Disconjugacy via Lyapunov and Vallee-Poussin Type Inequalities for Forced Differential Equations"
- Michael Parks (Sandia National Laboratories, U.S.A.)
  "A Multi-Time-Step Method for Partitioned Time Integration of Peridynamics"
- Petronela Radu (University of Nebraska-Lincoln, U.S.A.)
  "Doubly Nonlocal Models in Elasticity"
- Maria Alessandra Ragusa (Universit di Catania, Italy; RUDN University, Moscow, Russia) *"On Some Topics in Pure Mathematics Concerning Minima of Nondifferentiable Functionals"*
- Marianna Ruggieri (Kore University of Enna, Italy)
  "Higher Order Nonlinear Schrdinger Equation: an exactly solvable nonlinear model for nonlinear optics and biological science"
- Erchin Serpedin (Texas A&M University, U.S.A.) *"A Linear Algebra Approach for Reliable Biomarker Discovery from Metagenomic Data"*

The Scientific Committee of TREPAM 2017 was composed by 9 members:

- Ravi P. Agarwal (Texas A&M University-Kingsville, U.S.A.)
- Robert Finn (Stanford University, U.S.A.)
- Ivan Kiguradze (Andrea Razmadze Mathematical Institute, Georgia)
- Adem Kilicman (Universiti Putra Malaysia, Malaysia)
- Anthony To-Ming Lau (University of Alberta, Canada)
- Dumitru Motreanu (University of Perpignan, France)
- Donal O'Regan (National University of Ireland, Ireland)
- Simeon Reich (Technion - Israel Institute of Technology, Israel)
- Wataru Takahashi (Tokyo Institute of Technology, Japan)

The Organising Committee was composed by 8 members:

- Mihaela Aldea ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Ovidiu Bagdasar (University of Derby, United Kingdom)
- Adriana Birluţiu ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Daniel Breaz ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Nicoleta Breaz ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Ioan-Lucian Popa ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Vasile Emil Ursu ("1 Decembrie 1918" University of Alba Iulia, Romania)
- Dorin Wainberg ("1 Decembrie 1918" University of Alba Iulia, Romania)

We wish to thank all participants of TREPAM 2017 for contributing to the scientific success of the conference. Special thanks to all Plenary and Main Speakers, and to the members of the Scientific and Organizing Committees.

Ovidiu Bagdasar and Ioan-Lucian Popa
Guest Editors of the Volume