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PREFACE

Fourth International Conference on New Trends of the Applications of Differential Equations in Sciences (NTADES 2017) is organized by the Department of Differential Equations and Mathematical Physics at Institute of Mathematics and Informatics (IMI), Bulgarian Academy of Sciences (BAS) from 18th to 22nd June, 2017. This conference is dedicated to 70 anniversary of the Institute of Mathematics and Informatics, BAS and to 50 anniversary of the Department of Differential equations at IMI-BAS.

Department of Differential Equations and Mathematical Physics at IMI - BAS was established in 2011 as an unification of the Department of Differential Equations and Department of Mathematical Physics and its head now is Prof. Angela Slavova.Department of Differential equations was founded in 1967 and its first leader was Prof. G. Bradistilov (1967–1971). In 1987 a Mathematical Physics Laboratory was founded (Department of Mathematical Physics of IMI BAS) based on the Department of Differential Equations. The first head was Prof. Marin Marinov. Members of the Department have participated in hundreds of scientific conferences in Bulgaria and abroad. Almost all members of the Department have been invited to give lectures in prestigious European (UK, Germany, France, Italy, Belgium, Netherlands, Spain, etc.), American (U.S., Canada, Australia) universities, and also in China, Japan, etc. More than 11 Ph.D. students have had advisors from the Department at IMI–BAS. The following Ph.D. students defended successfully their thesis: K. Janakiev, N. Tzvetkov (who is now a Professor in University of Cergi-Pontoise, Paris), B. Yordanov (who is now working at Hokkaido University, Japan), R. Yordanova, K. Azgorov, G. Venkov, A. Ivanov, L. Softova, M. Markova, Y. Stoynov, V. Rashkova.

Since 2014 Department of Differential Equations and Mathematical Physics is organizing International Conference "New Trends of the Applications of Differential Equations in Sciences" (NTADES) (`www.math.bas.bg/ntades`). The Conference is in cooperation with Society of Industrial and Applied Mathematics (SIAM) as the major international organization for Industrial and Applied Mathematics and this is very highly appreciated. The role of SIAM is very important for promotion of interdisciplinary collaboration between applied mathematics and science, engineering and technology in the Republic of Bulgaria.

Differential equations have a lot of applications in many natural phenomena. This conference is devoted to such applications. A number of phenomena in nature (physics, chemistry, biology, engineering) and in society (economics) result in

problems leading to study of linear and nonlinear differential equations. During the conference invited and contributed papers were presented. Main topics were: Mathematical Physics; Mathematical Finance; Mathematical Biology; Nonlinear waves; Fractional Analysis; Neuroscience; Mechanics. The conference provided a wide range of problems concerning recent achievements in both theoretical and applied mathematics. The main goal was to present new ideas and research for scientists, who develop and study differential equations, and researchers, who apply them for solving real life problems. The conference promoted basic research in mathematics leading to new methods and techniques useful for applications of differential equations. This scientific forum is a media for the exchange of information and ideas between mathematicians, engineers, economists and other scientists. More than 60 participants from universities and institutes of different countries — Italy, Japan, Germany, Tailand, India, Pakistan, UAE, Russia, Israel, Greece, etc. participated in NTADES 2017. They represent most of the strongest research groups in the fields of differential equations and applied mathematics. We are very glad to report that young researchers, Post Docs and Ph.D. students will participate during NTADES 2017.

The organizers acknowledge the financial support in the frames of the project DPMNF 01/9.

Angela Slavova
Chair of the Program Committee
NTADES 2017

Invited Speakers

Prof. Alexander Domoshnitsky, Ariel University, Ariel, Israel
Prof. Ronald Tetzlaff, Technical University of Dresden, Dresden, Germany
Prof. Alon Ascoli, Technical University of Dresden, Dresden, Germany
Prof. Vladimir Georgiev, Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences and University of Pisa, Pisa, Italy
Prof. Emil Manoah, Institute of Mechanics, Bulgarian Academy of Sciences
Prof. Nicolay Nikolov, Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences
Prof. Petar Popivanov, Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences

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Bulgarian Academy of Sciences
Prof. Pietro Zecca – Univeristy of Florence, Italy
Prof. Snezhana Hristova – University of Plovdiv
Prof. Elena Litsyn – Ben Gurion University, Israel
Prof. Alexander Domoshnitsky – Ariel University of Samaria