

Journal of Interdisciplinary Mathematics

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Special Issue on

**Mathematical Methods and Modelling in Emerging Fields
of Science and Engineering**

Guest Editors

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FOREWORD

This special issue “Mathematical Methods and Modelling in Emerging Fields of Science and Engineering” of the *Journal of Interdisciplinary Mathematics* (JIM) is mainly a collection of the articles from the “4th International Conference on Mathematical Modelling, Applied Analysis and Computation-2021 (ICMMAAC-21)” organized by Department of Mathematics, JECRC University, Jaipur, India during 05-07 August, 2021. The conference covered crucial topics of applicable mathematics and computing. The role of mathematical methods and modelling in scientific and engineering discipline is very crucial. The mathematical methods and modelling play their role in almost all areas of science, engineering, finance and social science, providing mathematical models that simulate distinct phenomena and behaviors of all types. Mathematical modelling assists scientists and engineers to describe the nature of a broad range of phenomena and processes in scientific and engineering fields. By utilizing the numerical results, they allow the working professionals to predict the evolution of those processes without using costly and difficult experiments. This special issue is devoted to the recent investigations in modern problems of mathematical modelling of physical, biological, chemical and engineering processes, complex systems, numerical and analytical methods. The articles appearing in this special issue are of interest to researchers and students in areas of sciences and engineering.

The conference was inaugurated by eminent mathematicians; Prof. George A. Anastassiou from University of Memphis, USA; Prof. Dumitru Baleanu from Cankaya University, Ankara, Turkey; Prof. Martin Bohner from Missouri University of Science and Technology (Missouri S&T),

USA: Prof. Jordan Hristov from University of Chemical Technology and Metallurgy, Sofia, Bulgaria; Prof. Carlo Cattani from University of Tuscia, Italy; Prof. Luis Vázquez Martínez from Departamento de Análisis Matemático y **Matemática** Aplicada, Facultad de Informática, Universidad Complutense de Madrid, Spain; Prof. Abdon Atangana, University of the Free State, South Africa; Prof. Valentina Emilia Balas from Aurel Vlaicu University of Arad, Romania; Prof. Haci Mehmet Baskonus, Harran University, Sanliurfa, Turkey; Prof. Wutiphol Sintunavarat from Thammasat University, Bangkok; Prof. Guo-Cheng Wu, Neijiang Normal University, China; Prof. Vikas Gupta from LNMIIT, Jaipur, India; Prof. K.S. Nisar, Prince Sattam bin Abdulaziz University, Saudi Arabia; Prof. Ritu Agarwal, MNIT, Jaipur, India and Dr. Devendra Kumar, University of Rajasthan, India. The valedictory function was organized and Prof. Carla M.A. Pinto from ISEP was chief guest of valedictory function. Awards in different categories were also given to eminent scientists and participants.

Prof. Dumitru Baleanu from Chankaya University delivered keynote talk on the topic “A physical meaning for fractional operators: A point of view”. Plenary talks were also given by eminent scientists. Prof. Martin Bohner, Missouri S&T, USA discussed “Hyers-Ulam and Hyers-Ulam-Rassias Stability of First-Order Linear and Nonlinear Dynamic Equations”; Prof. Jordan Hristov from University of Chemical Technology and Metallurgy presented a plenary talk on “From the Koeller’s idea towards the modern fractional operators”; Prof. Carla M.A. Pinto, ISEP, Portugal discussed on “The effect of aggressive chemotherapy in a model for HIV/AIDS-cancer?”; Prof. Haci Mehmet Baskonus, Harran University presented his talk on the topic “On the Soliton Theory in PDEs with various order”; Prof. W. Sintunavarat, Thammasat University Rangsit Center, Pathumthani 12120, Thailand discussed “A survey on the history of fixed point theory and novel applications in real-world problems”; Prof. George A. Anastassiou, University of Memphis, Memphis, USA spoke on “Multiparameter Fractional Differentiation with non singular kernel”; Prof. Luis Vázquez, Departamento de Análisis Matemático y

Matemática Aplicada, Facultad de Informática, Universidad Complutense de Madrid, Spain spoke on “From radiation to space exploration large and massive simulations: cloud computing”; Prof. Kalyan Chakraborty, KSCSTE-Kerala School of Mathematics, Kerala, India spoke on “Elliptic curves: Introduction and an application”; Dr. Devendra Kumar, University of Rajasthan, India gave his talk on “Fractional Calculus: what is, why study and how is it important in dealing real world problems?” and many other distinguished scientists discussed their novel advance findings.

Total 445 research papers were received from the eminent researchers. Each article was carefully reviewed by committee members and 301 papers were selected for presentation. Out of these selected papers, 10 most suitable research articles were accepted for publication on the basis of review reports from at least two reviewers, within the aim and scope of the special issue.

The guest editors are highly grateful to all the reviewers for their useful and important suggestions; as also to all the contributors. The guest editors are also thankful to Prof. B. K. Dass, Chief Editor of JIM and Mr. Rupesh Gupta of Taru Publications for their constant support and assistance in bringing out the present collection of papers.

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