The First International Conference on Mathematics and Statistics "AUS-ICMS'10"
March 18-21, 2010

Organized by

The Department of Mathematics & Statistics

College of Arts and Sciences
American University of Sharjah

Co-Sponsored by

The American Mathematical Society -AMS

The aim of the conference is to bring together researchers and scientists working in the fields of pure mathematics, applied mathematics, mathematics education and statistics. The proposed technical program of the conference will include contributed talks and keynote lectures.

Topics to be covered include, but are not limited to:

- Algebra
- Analysis
- Applied Mathematics
- Differential Equations
- Discrete Mathematics
- Financial Mathematics
- Mathematics Education
- Number Theory
- Numerical Analysis
- Probability Theory
- Statistics and its Applications
- Stochastic Differential Equations
- Topology and Geometry

Special Sessions: Algebra, Analysis, PDE, Applied Algebra and Combinatorics, see details at
http://www.aus.edu/conferences/icms10/special_sessions.php

Abstract Submission Deadline: December 15, 2009
Registration Deadline: December 30, 2009
Late Registration Deadline: February 1, 2010

Website: **http://www.aus.edu/conferences/icms10/**
E-mail: **aus-icms@aus.edu**

The following Special Session at"AUS-ICMS'10", ANALYSIS: Integral Transform Methods, Special Functions and Applications ("ITMSFA"), will be organized by Virginia Kiryakova, virginia@diogenes.bg

The topics of "ITSFA" include: - Integral Transforms, Operational and Convolutional Calculi, - Special Functions, Fractional Calculus, Differential and Integral Equations of integer and fractional order - methods for solutions and applications).

Description: The proposed session focuses on important and closely related topics of the applied mathematical analysis, that are recently included in many international conferences on mathematics and its applications:

(A) Integral Transforms; Operational and Convolutional Calculi; Transmutation Methods
(B) Classical Special Functions (Special Functions of Mathematical Physics); Special Functions of Fractional Calculus (H- and G- generalized hypergeometric functions, Mittag-Leffler type and generalized Wright functions)
(C) Fractional Calculus – theory of operators of integration and differentiation of arbitrary (fractional) order, their generalizations and applications
(D) Differential and Integral Equations (of integer and arbitrary, i.e. fractional order), methods for solutions and applications in science, engineering, economics, etc.

The number of papers, surveys and monographs; specialized journals and proceedings of interna-tional conferences, dedicated to the listed topics is fantastically increasing in last two decades. Conferences on them are gathering pure mathematicians, applied scientists and engineers and people from industry from all over the world. (A) and (B) are traditional and very closely related topics of the applied mathematical analysis. They provide constructive methods for resolving important problems of analysis, mathematical physics (explaining the notion "Special Functions of Mathematical Physics") and engineering - in explicit analytical form, or by effective numerical and computational procedures and visualizations. These trends are related to important classical results and great names in mathematics. Their contemporary revival is due to the interconnection between them, and to the appearance of effective Computer Algebra Systems (CAS) as *Mathematica, Maple, Matlab*. The ideas of the Fractional Calculus (C) have been launched since 695 by the founders of the classical Calculus, as its paradox extension but for the last 30 years has gained the role as an efficient and necessary tool to model our Fractal World. The close relationship between (A), (B) and (C) has been recently reinforced by the use of special functions as kernels of the generalized integral transforms and of the generalized fractional calculus operators, and vice versa – by the impact of these integral transforms on the special functions' theory, to provide their new classifications and representations. The tools of (A), (B), (C) find various applications in problems of complex and real analysis (for example, in the theory of entire functions, in classes of univalent, starlike and convex functions, in theory of commutative operators, etc); for explicit solving of fractional (or integer) order differential and integral equations (D) modeling various phenomena of physical, mechanical, engineering and social sciences. One of the basic methods giving power to these topics of analysis and relating their objects, is the so-called Transmutation Method, based on "transmutation" or "similarity operators". It allows to find out the solutions of new and more complicated problems by their reduction to older and simpler ones, whose solutions are already known.