KONGUNADU ARTS AND SCIENCE COLLEGE

(Autonomous)

Coimbatore – 641 029

DEPARTMENT Of MATHEMATICS (AIDED)

Department Activities for the Academic Year 2017-2018

INTERNATIONAL CONFERENCE ON CURRENT SCENARIO IN PURE AND APPLIED MATHEMATICS

Post Graduate and Research Department of Mathematics, Kongunadu Arts and Science College (Autonomous), Coimbatore organised a Three day International Conference on Current Scenario in Pure and Applied Mathematics from 14-02-2018 to 16-02-2018 supported by the Indian Science Congress Association, Coimbatore Chapter.

During the Inaugural function, Dr.K.Muthukumaraswamy, Head of the Department of Mathematics welcomed the gathering. The Secretary and Director of our College Dr.C.A.Vasuki delivered the Presidential address. Dr K. Balachandaran, Professor (BSR-UGC), Department of Mathematics, Bharathiar University gave the Inaugural Address. Principal of our College Dr.V.Balasubramaniam and Dr. S. Paulsamy, Dean Academic and R&D of our College offered the Felicitation. Dr.Haci Mehmet Baskonus, Associate Professor of Applied Mathematics, Department of Computer Engineering, Munzur University, Tunceli, Turkey and Dr.V.Lokesha, Professor of Mathematics, V.S.K. University, Ballari, Karnataka delivered the special address. Chief guest Dr. Ismail Naci Cangul, Professor of Mathematics, Faculty of Arts and Science, Uludag University, Bursa, Turkey delivered the key note address. Dr. K. Ramasamy, Associate Professor of Mathematics proposed the vote of thanks. In commemoration of the conference an MoU was signed with Uludag University Turkey.

INAUGURATION

Welcome address by Dr.K.Muthukuamaraswamy, HoD of Mathematics, Convenor- ICCSPAM

Presidential address by Dr.C.A.Vasuki, Secretary & Director

Inaugural address by Dr.K.Balachandran, Professor (UGC-BSR), Department of Mathematics, Bharathiar University, Coimbatore, Tamil Nadu.

Dr.V.Balasubramaniam, Principal offered the Felicitation

Dr.S.Paulsamy, Dean Academics and R&D, offered the Felicitation

Releasing the Proceedings of the Conference

Exchanging of MoU

Special Address By Dr.Haci Mehmet Baskonus

Special Address By Dr.V.Lokesha

Keynote Address By Dr.Ismail Naci Cangul

Dr.K.Ramasamy proposed the vote of thanks

In technical session I, Dr**. K. Balachandran** delivered a lecture on "**Existence of solutions of fractional partial differential equations**". In his lecture he discussed the applications of fractional partial differential equations in viscoelasticity, electro-chemistry, signal processing, control theory, porous media, fluid flow, rheology, diffusive transport, electrical networks, electromagnetic theory, probability, signal processing, and many other physical processes. The session was very informative and interactive.

Technical session II was handled by **Dr. Ismail Naci Cangul,** Professor of Mathematics, Uludag University, Bursa, Turkey on "**Partitioning Graphs**". In this session, he explained about Efficient Heuristic Procedure for Partitioning Graphs and he discussed some applications about the reliability, connectedness, the number of realizations with several properties, the number of components, loops, multiple edges, pendant edges, chords, etc of a realization of a given degree sequence.

Dr. Haci Mehmet Baskonus, Department of Computer Engineering, Munzur University, Tunceli, Turkey delivered a lecture on "**Novel powerful tools for solving non-linear models**" in technical session III. Here some novel methods such as Bernoulli sub-equation function method, Modified Exponential Function Method, Improved Bernoullı Sub-Equatıon Functıon method, Homotopy Perturbatıon Sumudu Transform method, Modified Kudryashov Method, Sine-Gordon Expansion method for obtaining new exponential and complex prototype structures to the some mathematical equations with high nonlinearity were discussed. He explained how to obtain new results by using these techniques for new properties of model . Also the two- and three-dimensional surfaces of these results can be obtained by using Wolfram Mathematica.

In technical session IV Dr. V. Lokesha, Professor of Mathematics, V. S. K. University, Ballari, Karnataka gave a lecture on "**Inventive on Mathematical Means and its inequalities".** Firstly, the results established on most successful indices for certain classes of derived-regular graph and the relations among them have been revealed. The prime molecular descriptors are bond additive i.e., the sum of edge contributions, the discriptors are named as Adriatic indices. The intriguingly interesting subclass of these descriptors consists of 148 discrete Adriatic indices. Secondly, encountered the closed forms *M*-polynomials of nanostructures such as *2D*-lattice, nanotube and nanotorus of $TUC_4C_8[p, q]$ for some degree-based topological indices. These indices are numerical tendency that often depict quantitative structural activity/property/toxicity/relationships and correlate certain physico-chemical properties, such as boiling point, stability and strain energy of the respective nanomaterial.

Technical session V was handled by **Dr. Manojkumar**, Associate Professor of Mathematics, Motilal Nehru National institute of technology, Allahabad and delivered a lecture on "**Mathematical modelling and numerical simulation**". The topic is to study of

Adomian decomposition method for solving differential equations and its computer implementation, which could be an interesting and promising subject associated with some physical problems in engineering.

In technical session VI, **Dr. T. Duraivel**, Associate Professor and Head, Department of Mathematics, Pondicherry University, Pudhucherry gave a lecture on "**Prime extension submodules**" . The existence of RPE filtrations for Noetherian modules M and any two RPE filtrations of M have same length. Hence this length is a numerical invariant for finitely generated modules over Noetherian ring. By introducing two binary operators, he gave a semiring structure on the collection of all submodules which occur in RPE filtrations and also characterizations for prime ideals and maximal ideals of that semiring.

Dr. R. Murali, Associate Professor of Mathematics, Dr. Ambedkar institute of technology, Bangalore delivered a lecture on "**Hamiltonian Laceability in Graphs**" in Technical session VII. He discussed about Hamiltonian cycles and path concepts related to computer science. The computer needs to be guided by a systematic method to visit all the locations and, for efficiency, no location should be visited more than once - which corresponds to a hamiltonian path.

The existence of a hamiltonian path in a connected graph is one of the most interesting research concept. If a hamiltonian path exists between every pair of distinct vertices, the graph becomes hamiltonian connected. As an offshoot of these properties, there exist graphs in which a hamiltonian path exists between pairs of its vertices at a specified distance. Hamiltonian laceable graphs are the class of graphs in which a hamiltonian path exists between every pair of vertices at an odd distance in it.

A graph G is a hamiltonian-t-laceable graph if there exists a hamiltonian path between every pair of distinct vertices u and v with the property $d(u, v) = t$; $1 \leq t \leq \text{diam } G$. If G is hamiltonian-t-laceable for all t then G becomes a hamiltonian connected graph. However, if there exists a hamiltonian path in G between at least one pair of vertices u and v with the property $d(u, v) = t$, then G is called a hamiltonian-t*-laceable graph.

Hamiltonian laceability has been interpreted according to the graph structure – like laceability in bipartite graphs, strongly hamiltonian laceable graphs, hyper hamiltonian laceable graphs and so on.

In this lecture hamiltonian laceable graphs and their applicability in various fields were discussed.

Dr. Anita Pal, Assistant Professor of Mathematics, National institute of technology, Durgapur delivered a lecture on "Application of Cordial Labeling on Various Graphs" in Technical session VIII. She addressed that Real world is now moving towards digitalization, for which graph labelling are explored more and more to optimize the communication cost. Among different types of labelling, cordial labeling and various kinds of cordial labeling play an important role. Also, she delivered a talk on signed product cordial labeling and total signed product cordial labeling on various graphs like Cartesian product between restricted bipartite graph and Path, web graph, jewel, gear, quadrilateral snake, triangular snake, tadpole and shell graph etc. In addition to this the time complexity of the designed algorithms were investigated.

In Technical session IX, **Dr. Subrahmanian Moosath**, Professor and Head, Department of Mathematics, Indian Institute of Space Science and Technology, Trivandram, Kerala delivered a lecture on the topic of "**Geometry of Statistical Models**". In his talk, he explained about Family of probability measures is a subset of infinite dimensional affine subspace of positive measures up to scale. if all ∇^e - auto parallel submanifold of a parameterized model S is exponential then S is an exponential family. Also he explained that the sub-manifold of a parameterized model S which is an exponential family is a ∇^e - auto parallel submanifold.

Totally 110 research articles were presented by participants.

Technical Sessions

Technical Session I handled by Dr.K.Balachandran

Technical Session II handled by Dr.Ismail Naci Cangul

Technical Session III handled by Dr.Haci Mehmet Baskonus

Technical Session IV handled by Dr.V.Lokesha

Technical Session V handled by Dr.Manojkumar

Technical Session VI handled by Dr.T.Duraivel

Technical Session VII handled by Dr.R.Murali

Technical Session VIII handled by Dr.Anitha Pal

Technical Session IX handled by Dr.Subrahmanian Moosath

PAPER PRESENATION




This conference provides an ideal platform for Researchers to interact with senior Mathematicians, to exchange their views and ideas, also to make possible collaboration with Researchers working in different areas of Mathematics and their applications. In this Conference participants gained the depth knowledge in the fields of Graph theory, Partial Differential Equations, Mathematical models, Algebra, Numerical Analysis and Statistics.

The presented papers will be evaluated by peers and based on their recommendations they will be published in the following journals:

1. Journal ITM Web of Conferences
2. Communications, Faculty of Sciences, University of Ankara,
   Series A1: Mathematics and Statistics
3. Journal of Informatics and Mathematical Sciences