National Conference on “Recent Advances in Applied Mathematics”

Mysuru: A two-day National Conference on ‘Recent Advances in Applied Mathematics-RAAM-2015’ was held at St. Philomena's College, Mysuru from January 22-23, 2015 at the College auditorium. It was jointly organized by the Departments of Mathematics and Physics, St.Philomena’s College, Mysuru, in association with the Department of Studies in Mathematics, University of Mysore.

The college choir, orchestrated by Sr. Laura Pinto, Assistant Professor of English, St. Philomena’s (Autonomous) College, Mysuru invoked the blessings of the Almighty by rendering a Invocation song.

The organizing secretary Prof. Vidhyadhar Sanjay Nair, Head of the Department of Mathematics, St. Philomena’s (Autonomous) College, Mysuru welcomed the gathering.

The Conference was presided by His Excellency Rt. Rev. Dr. Thomas Antony Vazhapilly, the Bishop of Mysuru. In his Presidential address, the Bishop, said, “India is not far behind in the field of mathematics and the students from India excel in mathematics and are recognized globally. Everything in day-to-day life is related to mathematics and is the starting point of technical revolution.”

Dr. R. Rangarajan, Professor and Chairman, Department of Studies in Mathematics, University of Mysore, addressed the gathering about the scope of the

conference and hoped that India would provide platform to many branches of advanced applied mathematics.

Rev.Fr. Leslie Moras, Principal, St.Philomena's (Autonomous) College, Mysuru, and the Chairman of the Organising Committee of RAAM-2015 highlighted the need of mathematics in life. He opined that, "Mathematics has pervaded into every field. Academic discipline and love towards the subject is very vital in order to understand mathematics."

The Chief Guest Dr. Govindan Rangarajan, Professor and Chairman, Department of Mathematics, Division of Interdisciplinary research, Indian Institute of Science, Bengaluru, inaugurated and delivered the keynote address. He highlighted the significance of Mathematics in detecting connectivity patterns in a network of nodes, the patterns in networks, functional connectivity, functional biomarkers for the onset of diseases and in the extensions of Granger causality applied to a much wider variety of complex systems. He stressed on the evolution of connecting patterns from signals.

Prof.G. Rajalakshmi, Head of the Department of Physics, St.Philomena's (Autonomous) College, Mysuru, proposed the vote of thanks. Convener of the conference, Prof. A. Thomas Gunaseelan, Associate Professor of Physics,St. Philomena's (Autonomous) College, Mysuru was instrumental in organizing the events.

Session I

Dr. B.S. Kiranagi, Principal Investigator, DST, University of Mysore, Mysuru gave a presentation on the topic "Lie Algebra and Lie Group Bundles". He explained, "the real orbit of a real point is open in the real part of its complex orbit. For every Lie Algebra, there is a Lie group used in Gauss Theory to study the behavior of particles." He added that differential equations and linear algebra are the two most important things in mathematics and thus requested all the students to learn linear algebra.

Session II

Dr. R. Sahadevan, Professor of Mathematics, Coordinator, UGC-SAP(CAS-level), Ramanujan Institute for Advanced Study in Mathematics, University of Madras, Chennai, delivered a lecture on " Non-Linear Dynamic Systems: Recent Developments, Challenges and Perspectives". He was of the notion that mathematics is a language of nature. His lecture concentrated on several topics

such as mathematical modeling of natural phenomena, non-linear equations, and solutions of ordinary differential equations, Gauss Hyper Geometric equations, Fractional Calculus and Non-linear partial differential equations.

Session III

The recipient of “President of India Award – 1983”, Dr. P.G. Siddeshwar, Professor and Chairman, Department of Studies in Mathematics, Bangalore University, Bengaluru spoke on the topic, “Be the change that you wish to see in the mathematical world”. He was of the opinion that the age old chalk and talk form is the best form of teaching but technology must be used as a tool to support our learning. He highlighted the method of curve tracing through equations. He maintained that, “Don’t wait for curriculum to dictate your activity, instead develop interest and go deep into the subject. One must not accept things just like that without understanding.” He requested the students to develop interest and understand things so that the subject would be fun to learn.

Session IV

Dr. A. Vincent Jeyakumar, Retd. Professor of Mathematics, Madurai Kamaraj University, Madurai, delivered a lecture on “Representation Theory of Finite Groups and Applications”. He focused on the different group sets and theories. As a demonstration, he worked out certain problems related to group sets and explained about Abelion and Non-Abelion groups.

Fourteen Research Scholars presented their papers related to Advanced Applied Mathematics and Physicswhich was chairedby Dr. B.S. Kiranagi, moderated by Dr. Giniswamy, Head of the Department of Mathematics, PES College, Mandya and Dr. Manjunath, PG Coordinator, Department of Mathematics, PES College, Mandya.

The first day of the conference concluded with a competition on exhibiting Posters with relevance to the theme of the conference. Prof. MayeGowda, Head of the Department of Mathematics, Bharathi College, Bharathi Nagar, Mandya, Dr. Giniswamy, Head of the Department of Mathematics, PES College, Mandya and Dr. Manjunath, PG Coordinator, Department of Mathematics, PES College, Mandyawere the juries.

All the events of the day were compered by the final year BSc student, Ms. AnushaRoshiniMascrenhas.

Day 2

Session V

Dr.K.V. Prasad, Chairman, Department of Studies in Mathematics, Vijayanagara Sri Krishnadevaraya University, Ballari, presented a technical talk on “Convection flow of Nano fluids over a continuously moving surface”. He explained the underlying concepts such as ‘Theory of Boundary Line, Boundary Layer representation on a continuous moving surface, Prof. L.J. Crane’s stretching sheet concept, polymer extrusion process, Newtonian and Non-Newtonian fluids, Behavior of fluids, Nano fluids, etc.

Session VI

Dr.S. Sundar, Department of Mathematics, Indian Institute of Technology, Madras, delivered an impressive talk on “Imaging through Partial Differential Equation Models”. He conceptualised on how to derive a clear image of pictures especially in medical scanners and fingerprint scanners. He stressed upon, “Technology can be used to clean the noise in an image.”

Session VII

Mr.A .Arunachalam, Scientist-SG, Earth Observation System, Indian Space Research Organisation (ISRO),Bengaluru,visualized the neo concept, “Indian Earth Observation Programme”. He elaborated the Concept of Resolution, Remote Sensing satellites, Optical Thermal imaging systems, concept of black and white and color images, Image Enhancement techniques and applications of remote sensing satellites.

Session VIII

Dr.MaheshaNarayana, Assistant Professor, M.S. Ramaiah University of Applied Sciences, Bengaluru, placed his presentation on “Successive Linearization techniques applicable to non-linear problems arising in fluid mechanics”. He solved certain Boundary value problems and also explained the ‘Darcy-Brinkman-Forchheimer Flow’.

The valedictory function was held during the post lunch session.

Prof. A. Thomas Gunaseelan, Associate Professor of Physics, St. Philomena's (Autonomous) College, Mysuru initiated the Valediction with the Welcome Address.

Dr. Sally Abraham, Head of the Department of Mathematics, Teresian College, Mysuru read the report of the conference.

Prof. Jeyanthi, Associate Professor of the Department of Mathematics, Teresian College, Mysuru and two student delegates reflected on the organization of the conference.

Rev.Fr. Leslie Moras, Principal, St. Philomena's College, Mysuruurged the students to keep abreast with the changes and the latest trends and to love mathematics as learning mathematics will help to branch out into any other filed or subject.

Dr. S.M. Deshpande, Senior Research Associate, Jawaharlal Nehru Center for Advanced Studies and Research, Bengaluru was the Chief Guest for the Valediction. In his valedictory address, he insisted that one needs to put more brain power behind every problem. He observed that, "There are a very few scientists in our country in shape optimization" and he asserted that, "If all of us contribute towards the applied mathematics, High Performance Competing can be achieved."

Msgr. Dr. N.S. Marie Joseph, Administrator, St.Philomena's (Autonomous) College, Mysuru, presidedover the Valediction of the National Conference. He pressed for the need for more models and charts to create awareness among young minds to discard the common mathematics phobia.

Prof.P.K. Mary Kurien, Former Head of the Department of Mathematics, St. Philomena's (Autonomous) College, Mysuru,and Rev.Fr. Leslie Moras, Principal, St. Philomena's (Autonomous) College, Mysuru, and the Chairman of the Organising Committee of RAAM-2015 were felicitated for their immense contributions towards the institution.

Organising Secretary Prof. Vidhyadhar Sanjay Nair,

Prof. A.ThomasGunaseelan ,Prof. R.Rangarajan

Prof.G. Rajalakshmi were also present amongst the dignitaries on the stage.