SECRETARY'S REPORT FOR THE YEAR 2014

On behalf of Bharata Ganita Parisad, I have the pleasure of presenting the report of the activities of the Parisad for the year 2014. We organized a three day conference jointly with Department of Mathematics & Astronomy, Lucknow University, during November 29 - December 1, 2013 with two special symposia on topology and mathematical modelling. There was a panel discussion on the Teaching of Mathematics chaired by Prof R.K.Sharma, IIT Delhi. There were 14 invited talks, 4 short talks and 23 papers were read during the conference. The conference was attended by more than 100 delegates.

There was a proposal in the last year's general body meet to also hold BGP conferences outside Lucknow. In this regard, I am happy to inform you that this year's conference is being jointly organised by Amity University, Jaipur, during Nov 21-23, 2014. I invite you to take active part in this conference.

In the year 2014, the Parisad organised two talks, one by Prof SC Arora, Delhi University, on March 11, 2014 and the other by Prof RK Upadhyaya, ISM, Dhanbad on August 9, 2014.

In June 2014, on the invitation of Prof R.S.Kulkarni, President, Ramanujan Mathematical Society, I attended a meeting of representatives of various mathematical societies in India including Indian Mathematical Society, Calcutta Mathematical Society, to name a few. The idea of making a consortium of all such mathematical societies was discussed. Prof. Weintraub, President, American Mathematical Society, also took part in the meeting.

The Parisad also published Vol. 62 of its journal GANITA. As is well known BGP receives 49 national and international journals in exchange of GANITA. The editorial team has informed me that Vol.63, 2012, is ready for press and will be released in December 2014. I hope that by the end off 2015, the backlog will be over as planned in the beginning.

This year 8 new life membership applications have been received. I welcome them to BGP.

Thank you.

Vivek Sahai
General Secretary

Proceedings of the Annual General Meeting of
Bharata Ganita Parisad

The Annual General Meeting of Bharat Ganita Parisad (BGP) was held on Sunday, Nov 16, 2014 at 2PM in the Department of Statistics, Lucknow University. The meeting was chaired by Professor Kamla D Singh, President, BGP. Following are the minutes:

1. Minutes of the Meeting held on November 29, 2013 were confirmed.

2. Secretary's report for the year 2014 was read and approved.

3. Treasurer's report for the year 2013-14 was read and approved.

4. It was decided to defer the election of the 2015 executive to the next meeting.

5. The following were elected as life members of BGP:

    (i)   Dr. Gopal Datt, Dept of Mathematics , PG DAV College, Delhi

    (ii)   Dr. AK Mishra, Dept of Mathematics, BHU, Varanasi

    (iii)   Dr Shikha Singh, Dept of Mathematics, IIT Kanpur

    (iv)   Dr Poonam Bajpai, Maharaja Bijli Pasi Govt College, Aashiana, Lucknow

    (v)   Dr Prakriti Rai, Amity University, Noida

    (vi)   Ms. Smita Sharma, KIIT Gurgaon

    (vii)   Dr. Puneet Mishra, Dept of Computer Science, Lucknow University

    (viii) Mr. Sushil Kumar, Dept of Mathematics and Astronomy, Lucknow University

6. President thanked Prof SK Pandey, Head, Department of Statistics, Lucknow University, for providing Room No. 6 for the General body meeting of the BGP.

    Meeting ended with a vote of thanks to the Chair.

Vivek Sahai
General Secretary

"BHARATA GANITA PARISAD (BGP)"
&
AMITY UNIVERSITY RAJASTHAN, JAIPUR

Jointly Organized

National Conference on Advances in Mathematics (NCAM) - 2014

November 21-23, 2014

… A Report

Amity University Rajasthan (AUR) and Bharat Ganita Parishad (BGP), Lucknow jointly organized a three day National Conference on *Advances in Mathematics* from 21st to 23rd Nov. 2014. The Conference was inaugurated by the Vice Chancellor Prof. Shishir K Dube,, Amity University Rajasthan. The program started at 10:00 AM with the ceremonial lighting of lamp. Prof. A.N. Pathak, Dean Research and Chairman Local Organizing Committee welcomed the Chief Guest ,delegates and student participants. Prof. U.C. De Head of Pure Mathematics Department, Calcutta University was the chief guest. Prof. Vivek Sahai, General Secretary of Bharat Ganita Parishad, Lucknow, (BGP) also welcomed the members, delegates and participants. He gave introduction about the BGP to the audience citing in brief its history, publications and other events. He informed that Prof. S.K. Dube last year mooted the idea of BGP organizing its next conference outside Lucknow.

Fourteen (14) invited speakers all experts in Mathematics delivered their Key note addresses during the conference. Fifty six (56) delegates registered and attended the conference besides Amity faculty. Eighty five persons participated and attended the conference.

It may be noted that in the history of 60 years plus of Bharat Ganita Parishad, it is for the first time such a conference is being held outside Lucknow. Prof. Sahai also invited people to join and become member of BGP. Prof. S.K.Dube , Vice Chancellor, AUR welcomed the chief guest (Prof. U C De) and Prof. Vivek Sahai.

Honorable Vice Chancellor Prof. S.K. Dube, Presented a Bouquet to Chief Guest Prof. U.C. De

Prof. Dube was thankful that BGP agreed to have its meeting in Rajasthan along with the Conference. He also remarked that his first conference was that of BGP at age of 19 and that his first paper was in the proceeding of BGP. He welcomed the speakers. Prof. U.C. De in his address introduced the history of mathematics in India - Its glorious period and the period of stagnation till 19th century. He also talked of the contribution of some of giants in mathematics such as Prof. A. Mukherji, Shri S. Ramanujan etc. He also talked of recent applications of supercomputers. He ended by saying "the more we know, the more is the quest to know further". Later the Book of Abstract was released. Prof. Neeraj Kumar, Head, Department of Physics and Organizing Secretary delivered the vote of thanks.

Ceremonial lighting during inaugural function of NCAM 2014

__On the first day, that is, 21st Nov. 2014__ the first plenary session was chaired by Prof. U.C De and the first speaker was Prof. S.K.Dube. His paper was titled **"Numerical modeling of storm surges in the North Indian Ocean"**. In his introduction various regions were shown where cyclones occurred recurrently. He also informed that in the south pacific and Atlantic regions cyclones occurred rarely or almost never occurred.

He focused on the North Indian Ocean and listed in chronological order the scale of devastation that each cyclone brought in and along. He also mentioned that from amongst all the natural calamities, the worst were storm surges. He then explained the formation of storm surges. He then went on to explain the factors contributing to disastrous surges in the Bay of Bangal. He introduced the model known as the IIT model and spoke of its success in predicting the storm surges in various countries. Replying to a query he also discussed the rules for naming for cyclones.

"Dynamical study of prey-predator system with a commensal species competing with prey species: Effect of time lag and alternative food source" and the other titled **"A note on operation equation of the type operator M X XM ,K 2 Z Z K "** . These were presented by Prof. P. Sinha and by Miss Ritu Aggrwal respectively. After lunch the session was chaired by Prof. A.N. Pathak. The first speaker was Prof. D.C. Sharma, Rajasthan central university. His paper was titled **"Machine repair problems with spares"**. He dealt with the problem of queuing which was one of the most unpleasant experiences of our life. He began his talk by introducing the audience right from the very beginning of this class of problems. The second speaker was Dr. Manisha Jain. Her paper was titled **"Mathematical modeling to determine skin temperature: a powerful toll to resolve abnormalities in human beings"**. She first spoke of the biology of skin grafting and of the various factors that affected healing. She then introduced her work in which she talked of her model which gave strikingly good results with those of the experiments. **On the same day, a banquet dinner was organized at Gold Resort for invited speakers, delegates and senior members of organizing committee.**

Honorable Vice Chancellor, Chief Guests and Delegates during the Conference

The next speaker was **Prof. Pramila. Goyal, from IIT Delhi. Her paper was titled "Air quality forecasting using mathematical model."** She introduced her paper by informing that the quality of air was deteriorating because of the presence of particulate matters nearly of 2.5 micron size. She had chosen Delhi as a case study as it was one of the most populated cities in the world .She spoke of air quality forecasting and informed the audience of the process by which data were selected after having gone through the training period. She introduced the various models and listed the results. The best model by her study was that of artificial neural network. She also did a comparison of performance of various regression models like MLR, ARIMA and ANN.

Releasing of Abstract Book during NCAM 2014

After lunch, the session was chaired by Prof. Pramila Goyal where Prof. Vivek Sahai was the first speaker. His paper was titled **"q-Representations of certain Lie Algebras with applications to Special Functions"**. He introduced his topic by giving the definition of Lie algebra. He went on to build his presentation by discussing representation of Lie Algebra, classification theorems. He then developed the q-representation theory and discussed three theorems. He also discussed deduction of various series from the various models.

The next speaker, Prof. V. Kumar, Director, Amity School of Engineering and Technology, AUR gave a presentation on **"Neural network modeling and explained inspiration from biology"**. He explained neural network and the associated mathematical model to solve energy problems. After tea the session was chaired by Prof. V Kumar. First paper titled **"A survey on mathematical and nature inspired approaches for route optimization"** was delivered by Ms. S. Pathak . She discussed various optimization techniques and drew inspiration from various nature inspired approaches. After successful delivered the talks and paper presentations a beautiful and entertaining cultural programmes was organized which were prepared and presented under the leadership of Mrs. Nidhi mathur of AIB, AUR, Jaipur.

**On the second day ie 22nd Nov.** 2014 the first plenary session was chaired by Prof. Vivek Sahai and the first speaker was Prof. Gopal Dutt. His paper was titled **"Solution of some operator equations involving shift or multiplication operator"**. He discussed the developments of various class of operators right from the days of study of Hankel and Toeplitz operators. He discussed the appearance of these operators in the initial days which were expressed in the matrix form, but later on other equivalent forms were obtained. Prof. U.C.De , the next speaker introduced the audience to Riemannian geometry. He started from Euclid work "the Elements " and the five postulates therein . He mentioned the case of fifth postulate and the queries that arose from it, till 1817, when Gauss proved its independence from other postulates. In 1854, 10th June, B.Riemann in a lecture introduced the concept of length, which Euclid did not. He defined Riemannian space and then went on to the introduction of Christoffel symbols, and development of tensor. He then discussed its applicability in relativity.

After lunch, session was chaired by Prof. Gopal. Dutt, of Delhi University. The first speaker was Prof. Meena Sahai, Lucknow University; Her paper was titled **"Strongly Lie nilpotent group algebras of index at most 8"**. She was mainly interested in the properties of Lie group. The next paper was of Prof.A.N. Pathak **"Computational Fluid dynamics and its Applications in Engineering and Technology"**. He dealt with the application of CFD in fluid mechanics and in engineering education.

The next session was chaired by Prof. Meena. Sahai. Two papers were presented - first titled

"Dynamical study of prey-predator system with a commensal species competing with prey species: Effect of time lag and alternative food source" and the other titled **"A note on operation equation of the type operator $M X ?XM ,K ?2 Z Z K ?$ "**. These were presented by Prof. P. Sinha and by Miss Ritu Aggrwal respectively. After lunch the session was chaired by Prof. A.N. Pathak. The first speaker was Prof. D.C. Sharma, Rajasthan central

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**On the third day i.e 23rd Nov 2014** the first plenary session's speaker was Dr. Gurminder Singh. His paper was titled **"Dual solutions of mixed convection flow with second order slip and first order thermal slip flow over a permeable shrinking cylinder"**. He began by introducing the importance of coupled differential equations and the methods to solve them. He also defined boundary layer and thermal boundary condition. He formulated his problem and gave its solutions. In the next session, chaired by Dr. Gurminder Singh four papers were presented. Post lunch session was chaired by Prof. U.C.De. The first speaker was Prof. Maithli Sharan from IIT Delhi. His paper was titled **"An overview on atmospheric dispersion modeling in low wind condition"**. He introduced the audience to the various forms of pollutants and the various mechanisms of transport of pollutants. He then introduced his model and the experimental results that he tried to verify. He put forth that a possible reason which could be responsible for the mismatch. He also presented the data recorded in IIT diffusion experiment. The next speaker was Prof. R.K. Sharma. His paper was titled **"Role of Group Theory in Cryptography"**. He introduced cryptography to the audience through examples.

After lunch six papers were presented. The conference was declared over and closed by Prof. A.N. Pathak, Chairman, Local Organizing committee on 23rd November, 2014.

Instructions to Authors

Bharata Ganita Parisad (B.G.P.) is a non-profit organization committed to the advancement of research in Mathematics. The Parisad publishes the jouranal Ganita, one volume consisting of two numbers every year. Currently the two numbers are published as a single annual volume. Due to some unavoidable reasons the activities of the B.G.P. were suspended since 2009 and the journal could not be published. After the revival of the B.G.P. in 2013, it has been resolved that the Parisad will publish the back volumes of Ganita. Hence this volume 63, 2012 is the third issue of Ganita after the revival of B.G.P.

Manuscripts intended for publication in Ganita should be preferably typset in LATEX and should be submitted through email with a TEX file and a pdf file. Manuscripts can also be submitted in hard copy/word file which should be neatly type-written and submitted to the Editor in duplicate along with a short abstract at the following address.

The Editor, Bharata Ganita Parisad

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I, M. Agarwal hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date : December, 2014   **M. Agarwal**
                                                                                    (Editor, Ganita)