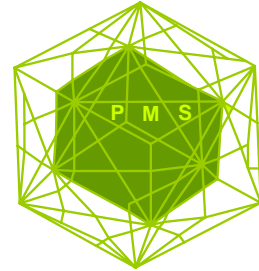


Pakistan Mathematical Society

Newsletter



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EDITORIAL

The term 'human resource' has been converged into human capital, which is now considered to be more valuable than all other forms of capital. As the nation's education level grows, its socioeconomic conditions also keep on growing at a multiplying rate. Education has a great impact on economic development. Sri Lanka has the highest per capita income amongst South Asian countries because of its higher literary rate. Its per capita income is over US \$800 as against US \$430 of Pakistan. Educational development plays a pivotal role in the progress and prosperity of the country.

The Minister of Science and Technology and Chairman of Higher Education Commission, Dr. Ata-ur-Rehman, had done a great job by securing a 50% increase in the allocation for higher education in the Federal budget for 03-04 and might manage more in the current year budget. Since primary and secondary education is the responsibility of the provincial governments there is a need for the enhancement of their education budget by 50% and efforts be made to ensure that increased allocations are judiciously used by the educational institutions.

HEC has initiated an international research support initiative programme. This programme gives Ph.D. scholars the opportunity to conduct research in advance and developed countries. The idea is supreme but it must be insured that the number of supervisors and the research material fulfill the needs of the Ph.D. scholars.

This newsletter is one way of communication. We request the feedback from those to whom the message is directed, if we do not incorporate means for immediate feedback into the communication process, we run the risk that the intended message will not be understood by the readers and we might not find out about miscommunication until it is too late to correct it.

Editors

5th PURE MATHEMATICS CONFERENCE 2004 FIRST ANNOUNCEMENT

The 5th Pure Mathematics Conference 2004 (5th PMC 2004) on Algebra, Geometry, Analysis and Mechanics will be held in Islamabad, Pakistan from 20th to 22nd August 2004.

You are invited to read a paper at the Conference as one of our main speakers. A formal invitation letter along with details about the conference will be sent shortly. The details about the conference and the registration form will be available on our website soon.

The 5th PMC 2004 will provide you a stimulating opportunity to meet experts in a variety of branches of algebra, analysis, and geometry from various countries.

We shall be able to offer you free travel, accommodation, and meals. Your early response will give us sufficient time to make appropriate arrangements for your stay. We are looking forward to make your stay in Islamabad a memorable one.

EXPERT CALLS FOR REVIVING STATE OF MATHEMATICS IN PAKISTAN

The Pakistan Mathematical Society (PMS) organized a presentation on ‘School of mathematics, in Pakistan and abroad’ by renowned mathematician, Professor Dr. A.D.Raza Chaudary, in Islamabad.

Professor Dr. B.A. Saleemi, Professor Dr. Qaiser Mushtaq, president PMS, Professor Dr. M.S. Kamran, vice president, Dr Arshad Mehmood, general secretary and chairman, department of mathematics, Allama Iqbal Open University, and other prominent mathematicians and post graduate students were present on the occasion.

Professor Dr. A.D.R. Chaudary is a Professor in the department of mathematics at Central Washington University (CWU) and is presently posted as Director General of the School of Mathematical Sciences, Lahore. He is the recipient of two prestigious international awards: most inspirational educator USA, 2002 and Distinguished Professor in research, Central Washington University, 2003. The latter award is the first ever awarded to a mathematician in the 112- year history of CWU.

Professor Dr. Chaudary made his speech in a very lofty spirited style, giving details of how a school of mathematics operates best, and what kind of faculty, students, and ingredients are best suited for a “mathematically viable” institution and environment. He informed the audience that while establishing the school of mathematical sciences in Lahore, he was fortunate to get the tutorial assistance of Mark Bashmakov and Nicolae Popescu from Russia and Romania respectively to assist the PhD students in the institute. On a question as to why only experts from Russia and Romania were chosen, he said that those who keep a record of mathematical development in the world, know that Romania

and Russia have made tremendous development in mathematical sciences and are far ahead than any other country. He said that these two countries had got the highest number of gold medals in the International Mathematics Olympiad so far. He told the students that it was their luck to have such expert mathematicians to help them in their PhD course at the institute. Speaking about the lack of counseling system in Pakistan, he said that the students wanting to do their PhD in mathematics would have to work harder to perform well in this field. He said that any mathematician must have a broad and strong base. He also stressed that a PhD must be highly paid to carry out his research with full concentration.

Professor Dr. Chaudary also said that he wanted to start collaboration between different mathematical and scientific schools in the country. He said that so far he had found such collaboration almost non-existent in Pakistan. He stressed that a conducive academic environment must be created to revive the state of mathematics in Pakistan.

Professor Dr. Chaudary also said that he was also trying to establish a national centre of mathematics in Government College, Lahore. Giving further details about Ph.D. admissions in the School of Mathematical Sciences, Lahore, he said that seventeen students would be selected through proper tests.

Speaking on the occasion, eminent Pakistani mathematician B.A. Saleemi called for a close contact between mathematicians and mathematical institutions in the country for the promotion of mathematics in Pakistan. He lamented that those at the helm of power and policy making do not appreciate the efforts made by the mathematicians and instead of helping, they are bent upon destroying the cause of mathematics.

Terming it as a deplorable situation, he said that all mathematicians and institutions must join hands and pressurize the policy makers to promote the cause of mathematics in the country. About Professor Dr. Chaudhary's suggestion regarding the higher pay for Ph.D. students, he said that this concept is not realizable in Pakistan as the nation is sloping down the poverty line every day. He said that this cycle of poverty is a phenomenal and no mathematician or scientist could ever solve it.

Stressing the need for removing all obstacles in the way to improving the status of mathematics in the country, Professor Dr. Qaiser Mushtaq said that institutionalization of policies was needed. He stressed the need to find out what went wrong that the state of mathematics in Pakistan has deteriorated so much. He stressed the need of shunning all kinds of nepotism, ad hoc-ism and red tapeism to improve the state of mathematics.

Speaking about the status of mathematics and the PMS Professor Dr. Qaiser Mushtaq said that the community of mathematician is a small one as compared to the size of its population and in comparison with other branches of science such as chemistry, biology, or physics. Moreover, sailing along the trend and getting interest by utilitarian slogans in Pakistan vis-à-vis education have harmed the development of mathematics in particular.

Consequently the nature of mathematics has grossly been misunderstood. Most of the literature that concerns mathematics portrays mainly two orthodox views of mathematics,

that is, it is an art and second, it is a servant of science. These views are so deep rooted and widespread that they have become a part of our national psyche. It is now difficult to dispel these notions. He also stressed that there is a desideratum of a comprehensive plan to change the prevailing notion of mathematics and its status. Of course, a couple of hand picked individuals can adopt a policy for improvement of mathematics in the country but it will be based on their own natural biased view of the subject and is only meant to meet their immediate vested interests.

PRESIDENT'S REPORT

On the eve of the annual general meeting of PMS the president, Professor Dr. Qaiser Mushtaq, presented its annual report. Some of the salient features of the report are given below:

To foster and promote mathematics in its broadest and most comprehensive sense.

To this end the society shall;

- (a) Support and encourage those involved in the research, teaching and bearing of mathematics at all levels;
- (b) Organize and support seminars, workshops and any other forms of meetings or general activities for the purpose of promoting mathematics;
- (c) Cooperate with other scientific, technological and industrial bodies in activities which are intended to promote mathematics.

Since its inception the PMS has been regularly publishing newsletters on a quarterly basis. The newsletter was registered with the Pakistan Science Foundation as a scientific newsletter. PMS has its own homepage which can be approached at www.geocities.com/pakistanmathsociety

The PMS decided to organize four seminars annually at the national level on topics allied to mathematics and it is proud to have adhered to the schedule so far. The seminars are being sponsored by the Pakistan Science Foundation. It can be said without exaggeration that mathematics in Pakistan needs a lot of improvement to become relevant at the international level.

The PMS holds frequent meetings to review and assess the situation with regards to mathematics. It also formulates recommendations and suggests remedial measures for the promotion of mathematics to the concerned quarters. Some of the recommendations are being considered and might materialize soon. This will have a remarkable impact on the relevant agencies and provide impetus to the alumni of mathematicians.

The PMS has been playing an active and pragmatic role in organizing and patronizing mathematical activities.

The PMS holds the Pure Mathematics Conference every summer in Islamabad. This intellectual activity has become a permanent feature.

- The first conference was held in the year 2000. It gave a good vision to researchers and scholars and provided a chance for local mathematicians to interact closely with foreign mathematicians. Many Ph.D. & M.Phil. students extended their horizon of research work. The conference also provided opportunities for developing collaboration in research in diverse mathematical areas amongst mathematicians from different institutions.
- The 2nd Pure Mathematics Conference was held on 8th & 9th of August 2001. Twenty research papers relating to the field of Group Theory, Functional Analysis, Differential Geometry, Numerical Analysis and Generalized Algebra were read at the conference.
- With the courtesy and financial assistance of the National Centre of Physics, Quaid-i-Azam University, Islamabad, a seminar was arranged on 17th January 2002 in which Dr. Mohammad Saleem of San Jose State University California, USA, delivered a lecture.
- A seminar was organized on 4th November 2002 in which Professor. Dr. Fazal Mahmood Mohamed, Director of the Department of Computerized & Applied Math, University of Witwatirsand, Johannesburg, South Africa delivered a lecture on “A Catalogue of Symmetries”.
- On 10th April 2003, Professor Dr. B..A. Saleemi, a renowned Pakistani mathematician, former faculty member of University of Punjab, Lahore, Quaid-i-Azam University, Islamabad, King Abdul Aziz University, Jeddah, and Durrum University, UK, gave a comprehensive talk on ‘Catastrophe Theory’.
- The Third Pure Math Conference was held in Islamabad on 9th and 10th August 2003. Researchers and mathematicians from all over the country attended the conference.
- The 4th Inter Pure Mathematics Conference was organized from 1st to 4th September 2003. It was the first International Pure Math Conference ever held in Pakistan. Resource persons from China, Hong Kong, UK, Philippines and Yugoslavia as well as leading mathematicians from all over Pakistan graced the occasion. It was a gathering of intellectuals and visionaries, which inspired the local participants.

The PMS organized a round table conference on 14th November 2002 to discuss the following agenda:

- Research Productivity allowance;
- Criterion for rating mathematicians; and
- Involvement of mathematicians in the policy making process.

A resolution comprising the view points of the mathematical community was forwarded to the Higher Education Commission, Pakistan Council of Science & Technology, the Ministry of Education and the Ministry of Science and Technology to consider the recommendations of PMS while framing and implementing their policies. The PMS proposed to collaborate with the government in policy making with special reference to end ad hocism. The PMS closely monitors the prevailing trends in mathematics and formulates future policies with relevance to the ensuing education policy and international demands. In this respect, the PMS has been vying for the establishment of a centre for advanced studies in mathematics. This will be a centre of excellence for local mathematicians and researchers which will go a long way in the development of a mathematical human resource for the scientific, economic, technological and industrial benefit of the nation. The centre will mobilize and streamline the efforts of PMS and provide a necessary centrifugal boost to the development of mathematics. In this respect, the PMS has done a commendable job within a short span of two years.

AWARDS AND PRIZES

ICMI AWARDS TO BROUSSEAU AND HOYLES

The International Commission on Mathematical Instruction (ICMI), founded in Rome in 1908, has, for the first time in its history, established prizes recognizing outstanding achievement in mathematics education research. The Felix Klein Medal honoring lifetime achievement is awarded to **Guy Brousseau**, Professor Emeritus of the University Institute for Teacher Education of Aquitaine in Bordeaux, for his lifetime development of the theory of *didactic situations* and its applications. The Hans Freudenthal Medal recognizing a major cumulative program of research is awarded to **Celia Hoyles**, Professor at the Institute of Education of the University of London, for her seminal research on instructional uses of technology in mathematics education.

ATIYAH AND SINGER AWARDED ABEL PRIZE

The Norwegian Academy of Science and Letters has awarded the 2004 Abel Prize jointly to **Sir Michael Francis Atiyah**, University of Edinburgh, and **Isadore M. Singer**, Massachusetts Institute of Technology. Atiyah and Singer will receive the Prize for their discovery and proof of the index theorem, bringing together topology, geometry and analysis, and their outstanding role in building new bridges between mathematics and theoretical physics.

INTEL SCIENCE TALENT SEARCH WINNERS

Two mathematics projects are among the top four winners in this year's Intel Science Talent Search. Boris Alexeev, 17, of Cedar Shoals High School in Athens, GA won the second-place prize, a \$75,000 scholarship, for his research in the theory of automata. Linda Brown Westrick, 18, of the Maggie L. Walker Governor's School in Richmond, VA won fourth place, a \$25,000 scholarship, for her mathematics project, *Investigations of the Number Derivative*. The first-place prize, a \$100,000 scholarship, was awarded to

Herbert Mason Hedberg of North Attleboro, MA, for developing a faster, more efficient method to diagnose cancer.

AWM ESSAY CONTEST WINNERS

The Grand Prize winner of the 2003 Biographies of Contemporary Women in Mathematics essay contest of the Association for Women in Mathematics is **Esther Feldblum** of Maimonides School in Sharon, MA, for her essay, Dr. Harpreet Chowdhary.

JOHN ALLEN PAULOS WINS AAAS AWARD

John Allen Paulos has been given the 2003 AAAS Award for Public Understanding of Science and Technology in recognition of his being "one of the greatest mathematical storytellers of all time." Paulos has written seven books, including *Innumeracy* (which appeared on *The New York Times* bestseller list), and more recently, *A Mathematician Reads the Newspaper* (which reached No.1 on Amazon.com and which was widely and positively reviewed. Paulos also contributes a monthly column.

NATIONAL ACADEMY OF SCIENCES MATHEMATICS AWARD

Dan Virgil Voiculescu (University of California, Berkeley) has received the National Academy of Sciences (NAS) 2004 Mathematics Award "for the theory of free probability, in particular, using random matrices and a new concept of entropy to solve several hitherto intractable problems in von Neumann algebras". The award, established by the AMS in 1988 in commemoration of its Centennial, was funded mainly by gifts to the Society from Morris Yachter and Sydney Gould. The \$5,000 award is given every four years for excellence of research in the mathematical sciences published within the past ten years.