Conferences on Mathematics

December 17-20, 2003 Bangalore, India
First Joint International Meeting between the American Mathematical Society (AMS) and various Indian Mathematical Societies

8-12 December 2003 Non-linear Partial Differential Equations and their Applications AMSI National symposium
University of New England, Armidale
http://turing.une.edu.au/~pde/

15-19 December 28th ACCMCC
The 28th Australian Conference on Combinatorial Mathematics and Combinatorial Computing, Melbourne.
http://www.cm.deakin.edu.au/comb03melbourne

Pakistan Mathematical Society

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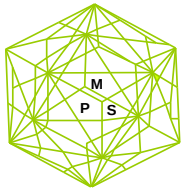
News Letter

Issue No. 4, July 2003



Editorial

It is indeed a matter of great pleasure that for the first time this Newsletter has been published at a printing press, in contrast to earlier issues presented to you were published by manual arrangements. This issue is a bit late and I am sorry for that. As you know, that 4th Pure Mathematics conference was at hand and our team was also busy in the arrangements of the conference, so we were not able to print this issue in time.

When I look back a couple of years ago there was nothing on ground like PMS a couple of years ago but now it stands as a reality. PMS now enjoys recognition of government organizations and is receiving financial assistance for different activities. There had been remarkable achievements of PMS since its establishment. The society arranged a number of popular lectures, seminars and conferences. The mathematical community all over the country had commended our efforts. This Newsletter is a humble effort to keep you in touch with other mathematical activities all over the world. We need your feed-back which is necessary for improvement of its quality. Please come forward and keep us abreast with your free opinions and any mathematical activity around you.

While the idea of PMS was in its embryonic stage, there were certain doubts about its establishment. Thanks to Almighty now it is a reality. Though we are much comfortable and pleased with our achivements but it is not the destination rather it is a first step. Efforts are underway for reciprocal affiliation with a number of international mathematical societies, so that the mathematical community in Pakistan may reap the benefits of research and other activities over the globe. This will also provide chance to creat better understanding and interaction.

Muhammad Irfan Ali

MATHEMATICIAN'S APPROACH TO FAITH AND REASON

Prof. Khwaja Masud
The writer is a former principal, Gordon College, Rawalpindi
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Mathematics possesses not only truth but supreme beauty -- a beauty cold and austere, like that of sculpture, without appeal to any part of our weaker nature, without the gorgeous trappings of music, yet sublimely pure and capable of perfection such as only the greatest art possesses. --Bertrand Russell

Faith is the reason about the abstract and reason is the faith in the concrete, and mathematics is the link between the concrete and abstract, between reason and faith.

We begin with the faith in the power of mathematics expressed by Galileo Galilei, who along with Descartes and Newton, is one of the founders of modern science. He said in 1623: "Philosophy is written in that great book which always lies open before our eyes, the universe. But it cannot be understood unless one learns to understand the language and to know the letters in which it is written. It is written in mathematical language and its letters are triangles, circles and other figures. Without these means it is humanly impossible to understand a word of it, and it remains but an idle roaming through an obscure labyrinth."

It was Galileo's faith that nature could be understood and it could only be understood mathematically.

The great mathematical science of nature, known to us, was at that time only in its infancy. A consistent mathematical theory of nature was still to come. Galileo could only express his faith that nature submits to mathematical treatment.

Faith, indeed, but a faith based on reason. By 1623 many successful mathematical applications have been made in astronomy, mechanics, cartography and navigation.
In accordance with the sceptical spirit evoked by a Renaissance, Galileo's faith was not based on authority, but was an extrapolation from the observation of facts, from personal experience, from philosophic insight. It was the type of faith which came to underlie all scientific progress -- a faith that demands strengthening by constant rational verification.

The whole history of science has since vindicated Galileo's faith. We are now accustomed to have a problem worked out on paper with formulas and then find atoms, liquids, gases, projectiles, planets and galaxies dance to our tune. And if they don't, we know that there must be another explanation, or another mathematical formula.

Has faith been entirely replaced by reason based on facts? Is it old fashioned to say that one of the mathematician's articles of faith is the conviction that nature obeys laws and that these laws can be formulated mathematically? Is this correspondence of formulas on a piece of power with the phenomena of nature still a mystery, only to be approached by an act of faith.

Those who anchor their faith in reason rather than in mystery would prefer to look at Galileo's faith in another way.

They look at mathematics as an evolution in history. It began thousands of years ago as a study of space and of numbers: already at an early period, men measured with rope and stick, counted sheep and cattle and watched the stars.

Gradually man's mind began to move along more daring paths. Mathematical knowledge increased. Study extended to complicated equations and logical systems.

From the finite, man moved to the infinite, from concepts directly representative of the world, to the lofty structures of abstractions.

Even more profound were his constructions and ever more subtle were his abstractions, until at present we hardly recognize the ancient origins of mathematics in space and number and rather define mathematics as the study of order and relation.

But does this mean that we have broken loose from space and number and with it from nature and the world around us? Rather our knowledge of nature has been refined. Therefore we can understand more and more. We have found a key not only to the crude aspects of nature but are allowed a glimpse into its intricate working.

Maths is thus not such a pure exercise of the human mind, as a study of the relations existing in our universe. Not only the law that five times five is twenty-five is an expression of certain relations occurring in nature, but also the more subtle laws of geometry, of algebra, of analysis, of topology reflect the workings of nature.

In this statement there still remains an element of faith. To many minds this is heresy. Many mathematicians take pride in the freedom of creation offered in their field. Modern mathematics especially is the domain of liberty, with its rejection of ancient conventions: space need not be three dimensional, numbers need not be real, axioms need not be expressions of direct experience.

However, this freedom does not lead us out of the universe: the new mathematics does find its often unexpected realization in recently discovered fields of physics, chemistry, astronomy and biology. So much so that mathematics cannot keep up with the demands made on its by sciences.

At present the difference between pure and applied mathematics has been narrowed to the extent that it is indistinguishable. What seems weird, mathematics may well represent some very definite set of relations in some field of applied research. Especially when a mathematical theory is well balanced, logically impeccable and aesthetically pleasing. Can we safely predict that it will be realized in some aspect of nature or society.

Take the example of the theory of complex variables, based on the square-root of minus one. This number first appeared in the 16th century as the free invention of the human mind. It was called imaginary to indicate that it was made of the stuff that dreams are made of. Today we know its close connection with rotation in the plane. The whole theory of alternating currents in electricity is based on it, and every electrical engineer is advised to study the theory of complex variables.

The freedom of mathematician is not illusory. This freedom is the freedom of which Spinoza speaks: Freedom is the knowledge of necessity i.e. you are free to the extent that you know your limitation.

We have seen that faith and reason are inextricably linked together. Faith is reinforced by reason and reason is propelled by faith. Whereas faith belongs to the realm of the unknown and the unseen, reason draws its sustenance from the known, the concrete and the experienced.

Mathematics is the link between the seen and the unseen; between the known and the unknown. The unknown cannot be understood without firmly grasping the known.

Mathematics is rooted in concrete reality, and, therefore, is capable of throwing its net around the pulsars and the quasars. It is quite capable of penetrating the Dark Holes. So long as the ummah is incapable of mastering mathematics, it will not be able to understand and grasp nature. Reason and faith must go hand in hand, each strengthening the other, thus casting the net around the stars, penetrating the secrets nature, and harnessing them to our benefit.

International Conference on Models and Methods in Fluid Mechanics

The conference was held from June 23 to 27 June 2003 at the Department of Mathematics, COMSATS Institute of Information Technology, Abbotabad. During the conference the focus area was Fluid Mechanics. A number of mathematical modellers from attended the conference.

Meeting of PMS delegation with Chairperson of PCST

A delegation of the Pakistan Mathematical Society led by Prof. Qaiser Mushtaq met with S.T.K. Naim, chairperson PCST (Pakistan Council for Science and Technology) on July17, 2003 at her office in Islamabad. During the meeting the present situation of different sciences, in particular mathematics, was discussed. The delegation was of the view that her rating of scientists, Impact factor, should not be the sole criteria. It was also agreed upon that more funds should be made available for the development of Mathematics in Pakistan. The idea of a national committee for mathematics also came under discussion. The delegation also included Professor Dr. B.A Saleemi, Dr. Arshad Mahmood, and Mr Muhammad Aslam.

Meeting of PMS delegation with Secretary Science and Technology

A delegation of PMS led by Professor Qaiser Mushtaq met with the Secretary Science and Technology on July17, 2003 at his office in Islamabad. During the meeting the idea of NCM (National Committee for Mathematics) was discussed. Possible effects of the impact factor on the promotion of scientific culture in Pakistan were also discussed.

Congratulations

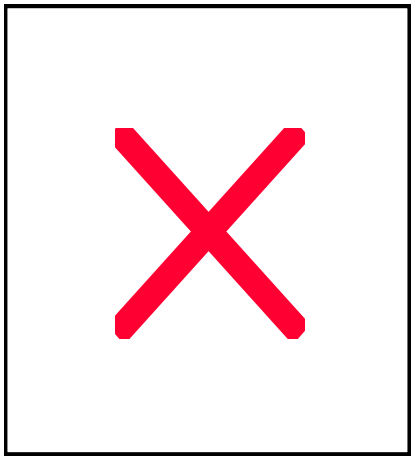
Professor Dr. Qaiser Mushtaq has been selected as Honorary Full Professor at the Institute of Basic Research, Florida, USA. PMS congratulates Professor Dr. Qaiser Mushtaq.

Fresh Rating of Impact Factor

The Institute of scientific Information, Philadelphia, USA has produced a fresh list of scientific journals with their impact factor. This list of journals has been reproduced by PCST (Pakistan Council for Science and Technology) discipline wise. There are three hundred and twenty one journals listed under the subject of Mathematics. There are only 15.58% journals with impact factor greater then one. There are only four Mathematics Journal with impact factor greater then 2. Bulletin of American Mathematical Society is rated number one with impact factor 2.75. It is also interesting that this list does not include any Pakistani Mathematical journal.

H.S.MacDonald Coxeter

Born: 9 Feb 1907 in London, England
Died: 31 March 2003 in Toronto, Canada



Donald Coxeter is always known as Donald which comes from his third name MacDonald. This needs a little explanation. He was first given the name MacDonald Scott Coxeter, but a godparent suggested that his father's name should be added, so Harold was added at the front. Another relative noted that H M S Coxeter made him sound like a ship. A permutation of the names resulted in Harold Scott MacDonald Coxeter.

Donald was educated at the University of Cambridge, receiving his B.A. in 1929. He continued to study for a doctorate at Cambridge under H F Baker, and this was awarded in 1931. He then became a Fellow continuing his researches at Cambridge. During this period he spent two years as a research visitor at Princeton University working under Veblen. He was Rockefeller Fellow during 1932-33 and Procter Fellow during 1934-35.

In 1936 Coxeter took up an appointment at the University of Toronto. He has remained on the faculty at Toronto ever since and recently a celebration was held in the department to celebrate his 60 years at the University of Toronto.

Coxeter's work has been mainly in geometry. In particular he has made contributions of major importance in the theory of polytopes, non-Euclidean geometry, group theory and combinatorics. Coxeter polytopes are the fundamental domains of discrete reflection groups, now called Coxeter groups, and they give rise to tessellation. In 1934 Coxeter classified all spherical and Euclidean Coxeter groups.

York is not the only university to honour Coxeter. He has received nine honorary doctorates and is a Fellow of the Royal Society of London and a Fellow of the Royal Society of Canada.

Among his most famous geometry books are *The real projective plane* (1955), *Introduction to geometry* (1961), *Regular polytopes* (1963), *Non-euclidean geometry* (1965) and, written jointly with S L Greitzer, *Geometry revisited* (1967). He also published a famous work on group presentations, which was written jointly with his first doctoral student W O J Moser, *Generators and relations for discrete groups.*

His 12 books and 167 published articles are on a variety of mathematical and non-mathematical topics. Coxeter met Escher in 1954 and the two became lifelong friends. Another friend, R Buckminister Fuller, used Coxeter's ideas in his architecture. In 1938 Coxeter revised and updated Rouse Ball's M*athematical Recreations and Essays*, a book, which Rouse Ball first published in 1892.

Coxeter has many artistic gifts, particularly in music. In fact before he became a mathematician he wanted to become a composer. However his interest in symmetry took him towards mathematics and into a career which he has loved throughout his life. Coxeter wrote:-

> *I am extremely fortunate for being paid for what I would have done anyway.*

In 1997 Coxeter was made a Companion of the Order of Canada. This is the highest of the three levels of honours that Canada conferes.
(Opted from Internet)

Meeting of PMS delegation with Professor Dr. Atta-ur-Rahman, Chairman HEC, vis-a-vis NCM

A delegation of PMS executive members met Professor Dr. Atta-ur-Rahman Chairman Higher Education Commission, in Islamabad on May 13, 2003. In the meeting Dr. Atta-ur-Rahman assured that he would provide his full support for the promotion of mathematics in the country.

Professor Dr. Atta-ur-Rahman was also supportive of the idea of establishing a National Committee for Mathematics under the auspices of the Higher Education Commission. The NCM would be a national body that would build a permanent well-defined partnership with the government. It was proposed that the NCM would function under the supervision of the chairman of the Pakistan National Commission on Science, with the Ministry of Education and Higher Education Commission acting as its patrons.

Prof. Rahman assured the delegation that he was fully aware of the fact that nothing was more important to Pakistan's prospects than the ability to create and make use of knowledge. As a nation, Dr. Atta said we faced significant national and international challenges. Exceptional opportunities for rapid progress in meeting these challenges were emerging at the leading edge of research, he said.

Earlier, Professor Qaiser Mushtaq briefed Dr. Atta-ur-Rahman on the appalling state of Mathematics in Pakistan. He said that development in mathematics and S&T were closely interwoven and therefore, a science policy cannot be a balanced one if it does not contain the relevant subjects – Mathematics, engineering, and other sciences, in the appropriate proportion of their importance.

The Pakistan Mathematical Society established in 2001 has been active in pursuing the improvement of the state of mathematics in Pakistan. The society has been trying to sensitize the government to the poor condition of mathematics in Pakistan.

Prof. Mushtaq informed that NCM would invite suggestions for the improvement and ratification of all the prevailing systems concerning mathematics. It should make an in depth study of the causes obstructing the growth of mathematics education and recommend remedial measures to accelerate research and development in mathematics. The NCM will also propose a national policy on mathematics and well represent the mathematical community in discussions with federal and other government organizations and policy makers. The NCM will also prepare an annual report on its activities and goals, including an annual summary of overall government funding in mathematics and projects relating to and concerning with mathematics. The NCM will also peer review the conduct of mathematical institutions and departments in the country.

It has also been proposed that once the NCM cames into existence, all the existing bodies and committees on mathematics should immediately cease to exist and operate. It was also proposed that all matters relevant to mathematical research and education would then be referred to NCM.

Prize Winners 2003

Polya Prize

Professor Angus Macintyre FRS of the University of Edinburgh has been awarded the Polya Prize for his widely influential contributions to model theory and its applications.

Over the last thirty years he has found many new applications of model theory in algebra, geometry, number theory, asymptotic and theoretical computer science. His work established a theory of p-adic semi-algebraic sets, and has since been widely used in p-adic contexts, for example, to prove a conjecture of Serre on the rationality of Poincaré series. His papers on totally transcendental fields and on algebraic groups created new paradigms for research in these areas. His work on the first-order content of Weil cohomology has opened up new possibilities for applying model theory in algebraic geometry.

Berwick Prize

Dr. Tom Bridgeland of the University of Edinburgh has been awarded the Berwick Prize for the paper: 'Equivalences of triangulated categories and Fourier-Mukai transforms' published in the *Bulletin of the London Mathematical Society* Volume 31 (1999), pages 25 - 34.
This paper introduced new methods and solved an important question in algebraic geometry. Subsequently these pioneering methods have been used to illuminate concepts and to solve problems across a number of areas of mathematics.

Senior Whitehead Prize

Dr. Peter Neumann of Oxford University has been awarded the Senior Whitehead Prize in recognition of his contribution to and influence on research into diverse branches of group theory, and for his broad-ranging service to British mathematics over many years.
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Whitehead Prizes

Dr. Nicholas Dorey of the University of Wales Swansea is awarded a Whitehead Prize for his contributions to mathematical physics, specifically to the understanding of non-perturbative effects in gauge field theories.

Dr. Toby Hall of the University of Liverpool has been awarded Whitehead Prize for his work on the dynamics of surface homeomorphisms. Hall has obtained some beautifully detailed and informative results, with the structure he has uncovered developing from, and extending, the one-dimensional theory, especially the famous Sarkovskii Theorem for interval maps, sometimes in unexpected ways.

Dr. Marc Lackenby of St Catherine's College and the University of Oxford has been awarded Whitehead Prize for his contributions to three dimensional topology and to combinatorial group theory.

Dr. Maxim Nazarov of the University of York has been awarded Whitehead Prize. He is famous for his work on the covering group of the symmetric group. He constructed the representations of the covering group of the symmetric group, thus solving a problem which had been open for 75 years. His work also opened the door for the construction of the irreducible modular representations of the covering group.

4th INTERNATIONAL PURE MATHEMATICS CONFERENCE 2003

Objectives

The Pakistan Mathematical Society has organized the 1st, 2nd and 3rd Pure Mathematics Conferences in 2000, 2001 and 2002. Without a proper base in the subject we cannot attain the high standards required in different scientific, technological and engineering fields. These conferences have not only provided the forum for increasing the

understanding of the targeted subjects, but also provided opportunity to mathematicians to interact with competent researchers at the national and international levels.

The 4th Pure Mathematics Conference was held from 1st to 4th September 2003. It was the first time that mathematicians from abroad were also invited to the annual activity. It has set new trends in the fundamental research in important mathematics branches and will also provide a useful forum for research. It was held at the Best Western Hotel, 6 Club Road, Islamabad, under the auspices of the Mathematics Department, Quaid-i-Azam University.

Mr Shahzad Hassan Pervez, the Secretary of the Ministry of Science and Technology, was the chief guest at the inauguration ceremony of the 4th International Pure Mathematics Conference 2003.

Dr.U.A.G. Isani, Vice-chancellor of Quiad-i-Azam University, who also spoke at the inauguration ceremony, said that it was essential for mathematicians in Pakistan to interact with international mathematicians through attending conferences and seminars abroad and by inviting foreign mathematicians to Pakistan.

Dr Isani was proud of the fact that QAU has been instrumental in establishing the Pakistan Mathematical Society and holding the Pure Mathematics Conference yearly since 2000. He also said that QAU produced the first local Ph.D in mathematics in Pakistan and it is also the institution that has produced the maximum number of Ph.Ds. in mathematics in the country.

Prof Qaiser Mushtaq, founding president of the Pakistan Mathematical Society and currently Chairman of the Department of Mathematics at QAU, said that the number of mathematicians in the country is low in proportion to the total population and that Pakistan lags behind in mathematical research by and large.

He also said that it was damaging to mathematics to consider it from a salesman's point of view, and it should also not be viewed as a service subject to the other branches of science.

Participants included mathematicians from China, Hong Kong, UK, Philippines and Yugoslavia, as well as leading mathematicians from all over Pakistan. The foreign mathematicians who presented papers at the first day of the conference included Prof. K.P. Shum of the Chinese University of Hong Kong Prof Shum, president of the Southeast Asian Mathematical Society (SEAMS), said that the Pakistan Mathematical Society (PMS) is doing well in promoting mathematics in Pakistan and SEAMS would like to collaborate with PMS in developing mathematics in the region. Others who will also be reading papers at the conference include Prof. Xiong Zouling, Prof. P.V. Protic and Prof. N. Stevanovic from Yugoslavia.

Some 90 guests attended the inauguration ceremony in the morning, while some 70 mathematicians participated in the conference. The conference continued until 3 September while The participants were taken on a sight-seeing tour of Islamabad on the last day

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Foreign Invited Speakers

Professor K. P. Shum
Professor P. V. Protic
Professor J.Xiong
Professor Z. Zouling
Professor N. Stevanovic
Professor Dr. B.Servatius
Professor D.A.R.Wallace
Professor Dr. H. Servatius
Dr. Brent Everet

Advisory Committee

Prof. Qaiser Mushtaq **(Convener)**
Prof. Dr. KP Shum
Prof. Dr. DAR Wallace
Prof. Dr. BA Saleemi
Professor M.Deza

Dr S.E.Rees

Organizing Committee

Mr. Muhammad Ali
Major Muhammad Ashiq
Mr. Muhammad Aslam
Professor M.S Kamran (Chairman)
Dr. Arshad Mahmood
Major Tariq Maqsood
Dr Noor Muhammad
Mr. Muhammad Ali
Mr. M. Sarwar Saeed (Secretary)
Dr. Muhammad Shabir

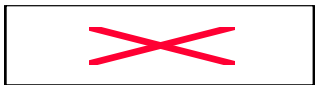
Sponsors

The conference was supported by the following organisations.

- Quaid-i-Azam University
- Pakistan Science Foundation
- Pakistan Mathematical Society
- COMSATS

LUMS MATHEMATICS DAY

Mathematics Day was celebrated at Lahore University of Management Sciences (LUMS) on July 03, 2003. There were four sessions during which papers were presented by local and foreign participants. Mr. Kazim Khan(USA), Dr. Ismat Beg, Arif Zaman, Faqir M.Bhatti, Khaida Inyat Noor (UAE), MNaeem Gul, Fethi Bin Muhammad Belgacem (Kuwait), Shahid S. Siddiqui. Amjad Lone, and S. M. Husrine presented their papers.



Faces of Mathematics Exhibition Online

Faces of Mathematics, an exhibit featuring 20 influential mathematicians, has been on display in the U.K. and is now viewable online at http://www.ma.hw.ac.uk/~ndg/fom.html.

The exhibition includes black & white portraits taken by the photographer, Marc Atkins, alongside a description of each subject's research interests and personal viewpoints on mathematics. The mathematicians featured are Sir Michael Atiyah, Ken Brown, Ed Corrigan, Peter Donnelly, Marcus du Sautoy, Gero Friesecke, Paul Glendinning, Timothy Gowers, and Valerie Isham.

This number first appeared in the 16th century as the free invention of the human mind.

Major Breakthrough in Prime Number Theory

Dan Goldston and Cem Yildirim have smashed all previous records on the size of small gaps between prime numbers. This work is a major step toward the centuries-old problem of showing that there are infinitely many "twin primes": prime numbers which differ by 2, such as 11 and 13, 17 and 19, 29 and 31,…

Goldston lectured on his result at AIM in Palo Alto on the evening of Friday, March 28.

On April 23rd, Andrew Granville of the Universite de Montreal and K. Soundararajan of the University of Michigan found a technical difficulty buried in one of the arguments in the preprint of Goldston and Yildrim. The main issue is that some quantities which were

believed to be small error terms are actually the same order of magnitude as the main term. For now this difficulty remains unresolved.

Banker’s Problem: Win $5000

As a banker in Dallas, Texas, Andrew Beal has an obvious interest in numbers. But he has another interest that is not so obvious: He is interested in the mathematical theory of numbers.

An amateur mathematics enthusiast, Beal came upon a question in number theory that even the experts can't answer. The question turns out to be at the frontier of research in the field, with connections to other deep mysteries in mathematics. To spur mathematicians to solve the problem, Beal has offered a prize of $5,000 for its solution. The prize will increase by $5,000 every year up to the amount of $50,000.

Will the Beal Prize Problem become the next Fermat's Last Theorem? Indeed, it is a generalization of that famous old problem, which Pierre de Fermat proposed over 300 years ago. Like the Fermat problem, the Beal Conjecture is easily stated: If Ax + By = Cz, then A, B, and C have a common factor. (Here all the letters represent whole numbers, with x, y, and z bigger than 2. Two numbers have a "common factor" if there is a number that divides both of them evenly. For example, 12 and 63 have a common factor of 3.)

Another resemblance between the Beal Conjecture and Fermat's Last Theorem is that both had prizes established for their solutions. In 1996, after Andrew Wiles made international headlines by presenting the number theory arsenal that finally brought down Fermat's Last Theorem, he collected the Wolfskehl Prize. Established in 1908 with funds from the will of a German physician and amateur mathematician, Paul Wolfskehl, the Wolfskehl Prize enormously increased the fame of Fermat's Last Theorem by drawing thousands of entries from all over the

globe.

The article, "A Generalization of Fermat's Last Theorem: The Beal Conjecture and Prize Problem," by Professor Daniel Mauldin, appears in the December 1997 issue of the Notices of the AMS. This article provides further details about Beal's question and its role in modern number theory.

Book Review

Recently a text-book entitled “Vector and Tensor Analysis for Scientists and Engineers” has appeared in the Market. It is written by Professor Dr Nawazish Ali Shah.

The book is intended to be written for beginners studying for a degree in engineering or a branch of science. It consists of seven chapters introducing vector analysis, geometry if vectors, vector differentiation, vector integration, Gradients, Divergence, Curl, theorems related to integrals, Curvilinear coordinates, and Cartesian tensors.

The book is written in a simple and straightforward style spread over about 487 pages with a large number of examples. The book is self-contained and requires very little knowledge from its readers. It has originated from the lecture notes on vectors and tensors delivered by the author to the students of mathematics and engineering at the University of Engineering and Technology, Lahore.

The book is published by A-one Publishers, Lahore.

About the Author

Professor Dr Nawazish Ali Shah did his MSC in mathematics from the University of the Punjab, Lahore in 1972. He obtained his second M.Sc. from the University of Newcastle Upon T, UK in engineering mathematics in 1982. He received his PhD in Engineering

Mathematics from the Loughborough University of Technology, UK in 1985.

He joined University of Engineering and Technology, Lahore as a Lecturer in 1974. In 1986 he became an Associate Professor and was appointed as a professor. He took charge of the department as its chairman in 2002.

Professor Dr Nawazish Ali Shah's research interests are in the field of Computational Fluid Dynamics.