

# **Pakistan Mathematical Society**

## **Newsletter**



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## **EDITORIAL**

The present issue of the *Pakistan Mathematical Society Newsletter* marks the completion of another year of academic and organizational activity of the Society. As with previous years, the fourth issue is devoted primarily to placing on record a brief account of the Society's work during 2025, as well as highlighting an important academic event of the year.

During the period under review, the Society continued its efforts—within its available means—to sustain scholarly engagement and to contribute to the development of mathematical culture in Pakistan. The organization of national seminars, the regular publication of the Newsletter, and the deliberations of the Executive Council reflect a continuing commitment to academic seriousness and institutional continuity.

A notable feature of the year was the holding of the Silver Jubilee International Pure Mathematics Conference (IPMC 2025), marking twenty-five years of this important conference series. The event provided an opportunity not only for academic exchange but also for reflection on the role of such initiatives in maintaining links between the national and international mathematical communities.

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The preparation and publication of an annual report is itself an important academic exercise. It serves not merely as a record of activities, but as a means of preserving institutional memory and providing continuity from one year to the next. In this spirit, the present issue places before its readers a concise account of the Society's work during the year.

## **THE DECLINE OF MATHEMATICAL SCHOLARSHIP IN PAKISTAN**

**Emeritus Professor Qaiser Mushtaq**

Mathematics in Pakistan has been quietly deteriorating for decades. Behind the façade of rising publication numbers and impressive-sounding research claims lies a discipline steadily losing its intellectual core. In universities across the country, numerical indicators have replaced scholarly judgment, inflated metrics have substituted for genuine contribution, and the very language of academic excellence has been distorted. What should be a field defined by clarity, rigour, and originality has instead become a numbers-driven enterprise shaped by weak oversight and misplaced incentives. The decline is not sudden, nor is it mysterious—it is the predictable consequence of choices made in policy, culture, and academic practice.

In the developed world, mathematics continues to evolve as a deeply creative, intellectually demanding discipline. Universities maintain strong traditions of rigorous training, independent thinking, and careful proof-based reasoning. Research groups work on foundational problems in algebra, geometry, topology, analysis, and modern emerging areas such as mathematical data science, category theory, and computational mathematics.

Applied mathematics abroad is closely linked to industry and technological innovation, but only when its theoretical content is genuinely robust and demonstrably relevant. Above all, mathematics in advanced economies remains an enterprise of depth and originality, not a competition of numerical indicators.

Pakistan once possessed the beginnings of a similar spirit. In the country's early decades, mathematics was modest but genuine. Only two individuals were honoured nationally before 1999. Muhammad Raziuddin Siddiqui received civil awards for building scientific institutions and securing international support for higher education—not for accumulating research metrics. S. M. Yusuf, a semigroup theorist, modernised mathematical texts at intermediary and tertiary levels, replacing outdated syllabi with structured and conceptually clear material. Their contributions were academic, educational, and structural. They belonged to a period that still understood mathematical merit qualitatively.

Civil awards today paint a different picture altogether. *To date, only nine civil awards of all categories have ever been granted in mathematics in Pakistan. These include just one Nishan-i-Imtiaz, one Pride of Performance, two Tamgha-i-Imtiaz, three Sitara-i-Imtiaz, and two Hilal-i-Imtiaz. Strikingly, seven of these nine honours have gone*

*to so-called applied mathematicians, reflecting not the depth of mathematical scholarship but the post-1999 shift toward easily quantifiable, impact-factor–driven research domains.*

Over time, the working culture within mathematics departments fragmented. Instead of vibrant academic communities, many departments turned into isolated enclaves where faculty members worked alone, seldom exchanged ideas, and rarely engaged with contemporary mathematical standards. Senior positions were often held by individuals lacking the depth required for leadership. As a result, imprecise terminology, weak conceptual foundations, and inflated self-perception became routine. Insecurity frequently expressed itself in formality, defensiveness, or overuse of jargon, hiding intellectual gaps rather than addressing them.

The introduction of cumulative Impact Factor (IF) further derailed the discipline. IF is inappropriate even for many sciences, but for mathematics it is wholly unsuitable. Yet Pakistan embraced it as the primary measure of academic excellence. This produced immediate distortions. Research began to be fragmented into multiple minor papers; repetitive modelling became common; co-authorship networks formed to multiply publication counts; and citation circles emerged to inflate metrics.

Journals with rapid publication cycles were sought purely for convenience. The result was an impressive rise in numbers paired with a steep decline in originality. Mathematics gradually shifted from a pursuit of ideas to a pursuit of indicators.

Teaching and supervision deteriorated in parallel. Under the semester system, a single teacher controls teaching, examination, grading, and evaluation, leaving little room for oversight. Students often complete degrees without mastering fundamental concepts. At the MPhil and PhD levels, theses are frequently modest variations of existing work, driven more by supervisors' need for publications than by genuine inquiry. Overproduction of degrees—unsupported by competence—has become common.

Academic seminars reflect the same superficiality. Increasing reliance on AI tools and multimedia slides has turned presentations into performances rather than intellectual discussions. Mathematics demands clarity, structure, and careful reasoning, none of which can be replaced by visual effects or algorithmic assistance. The overuse of such tools often conceals the presenter's lack of understanding.

Civil awards reflect the deepest distortion. Before 1999, national honours were rare and tied to substantive academic or institutional contributions. After 1999, as

numerical metrics became central to evaluation, civil awards increasingly went to individuals in applied fields—fluid mechanics, relativity/gravitational physics, and applied complex analysis—where repetitive paper production is convenient. A new rhetorical technique became common in award nominations: theoretical work was described as “useful for Pakistan.” This language appeals to officials unfamiliar with scientific evaluation. When asked why such work has never been implemented, researchers frequently respond that Pakistan lacks an R&D culture. The argument is untenable. If the work had genuine technological relevance, the international market—far more developed than Pakistan’s—would have adopted it. These claims of “national usefulness” are largely persuasive devices rather than accurate assessments of impact.

These practices mislead policymakers and distort the public understanding of mathematics. To counter this, university Quality Assurance Centres must rigorously scrutinise research claims, especially in mathematics where practical applicability must be demonstrated, not assumed. Award nominations should reflect scholarly merit, not inflated metrics or exaggerated assertions.

Reform is urgently needed. Independent oversight by experts in pure mathematics, applied mathematics, and

computer science—appointed for fixed, rotating terms—would introduce accountability and break the influence of entrenched internal networks. Equally important is authentic internationalisation. Collaboration with foreign scholars, external evaluations, and exposure to global academic standards can help repair structural weaknesses that have persisted for decades.

The crisis in mathematics is inseparable from Pakistan's broader educational crisis. Illiteracy remains widespread, and many who are formally considered literate lack foundational skills. Weak preparation at the school level feeds directly into weak university cohorts, which in turn produce graduates who cannot sustain or improve the system. Without rebuilding early mathematical education, higher education cannot achieve lasting improvement.

Pakistan cannot rebuild its scientific capacity without restoring integrity to its mathematics. The discipline must be rescued from inflated metrics, exaggerated claims of utility, and superficial academic practices. Its revival demands stronger institutional oversight, honest evaluation of research, and a return to intellectual values rather than numerical targets. Mathematics must once again become a discipline of reasoning, structure, and understanding—a foundation of scientific progress rather than a casualty of flawed incentives. If Pakistan fails to

correct course, it risks losing not only the future of mathematics but also the intellectual backbone of its scientific and technological aspirations.

## **SILVER JUBILEE INTERNATIONAL PURE MATHEMATICS CONFERENCE (IPMC 2025)**

The Silver Jubilee International Pure Mathematics Conference (IPMC 2025) was held from 29–31 August 2025 in Islamabad, marking 25 years of the IPMC series since its inception in 2000. Founded by Emeritus Professor Qaiser Mushtaq at Quaid-i-Azam University, the conference has developed into a recognized forum in the region for scholarly exchange in Algebra, Analysis, Geometry, and related areas of mathematics.

A notable feature of the IPMC series has been its well-defined organizational structure, comprising an International Steering Committee, a National Advisory Committee, and an Organizing Committee, which collectively ensure continuity and academic oversight.

The 20th IPMC marked a transition in the mode of organization, being held online due to the COVID-19 pandemic. In subsequent years, the conference has continued in hybrid form, combining physical and online participation.

The Silver Jubilee Conference was conducted in this format. A total of 182 speakers presented their research contributions, including 23 from Pakistan and 159 international participants, with over 300 participants attending the conference.

A distinctive feature of the Silver Jubilee Conference was the dedication of each day to a distinguished mathematician in recognition of scholarly contributions and longstanding academic association with the IPMC series. The three days were respectively dedicated to Professor Said Najati Sidki (Jerusalem–Brazil), Professor Herman Servatius (USA), and Dato Professor Rosihan M. Ali (Malaysia).

The conference was jointly sponsored by the Pakistan Mathematical Society and Quaid-i-Azam University, whose continued support has sustained the IPMC series over the years.

Over the past 25 years, the IPMC series has hosted 631 foreign speakers from 57 countries and more than 880 speakers from Pakistan, with a cumulative participation exceeding 4,700.

The successful holding of IPMC 2025 marks an important stage in the continuity of the series and provides a basis

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for further strengthening its academic scope and international engagement in the years ahead.

The Society looks forward to broader engagement and support from international mathematical organizations for the continued development of the IPMC series.

## **PAKISTAN MATHEMATICAL SOCIETY ANNUAL REPORT – 2025**

The year 2025 marked another meaningful phase in the academic and organizational life of the Pakistan Mathematical Society (PakMS). The Society continued to pursue its mission of promoting mathematics, encouraging scholarship, and contributing to the strengthening of mathematical and scientific culture in Pakistan through seminars, publications, Executive Council deliberations, membership expansion, and support for important academic activities.

### 1. National Seminars

During the year under review, the Society organized the following National Seminars:

- National Seminar 68  
*Wars and Global Effects on Science and Technology*

Speaker: Emeritus Professor Qaiser Mushtaq,

Quaid-i-Azam University, Islamabad

Date: 1st July 2025

- National Seminar 69  
*Indigenous Tertiary Qualification in Science in Pakistan*  
Speaker: Emeritus Professor Qaiser Mushtaq,  
Quaid-i-Azam University, Islamabad  
Date: 15th December 2025
- National Seminar 70  
*Role of Academic Societies in Developing the Scientific Culture*  
Speaker: Dr. Muhammad Sarwar Saeed, Pakistan  
Mathematical Society  
Date: 17th December 2025

These seminars reflected PakMS's continuing concern not only with mathematics as a discipline, but also with broader academic, scientific, and educational issues of national relevance.

## 2. Publications

The Society continued the regular publication of its quarterly newsletter during 2025:

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- Pak. Math. Soc. Newsl. ISSN 1816–2215, Issue No. 1, Vol. 8, 2025
- Pak. Math. Soc. Newsl. ISSN 1816–2215, Issue No. 2, Vol. 8, 2025
- Pak. Math. Soc. Newsl. ISSN 1816–2215, Issue No. 3, Vol. 8, 2025
- Pak. Math. Soc. Newsl. ISSN 1816–2215, Issue No. 4, Vol. 8, 2025

The Newsletter remained one of the Society’s principal channels for communication, reflection, and documentation of mathematical and academic activity.

### 3. Executive Council for 2025

The Executive Council of the Pakistan Mathematical Society for the year 2025 consisted of the following ten members:

- Professor Qaiser Mushtaq — President
- Brigadier Dr. Ashiq Javed — Vice President
- Dr. M. Sarwar Saeed — General Secretary
- Dr. Irfan Younas — Treasurer
- Dr. Amna Kalsoom — Information Secretary

- Dr. Nasir Rehman — Executive Member
- Dr. Shahida Bashir — Executive Member
- Mr. Kamran Shafique — Executive Member
- Mr. Toheed Jillani — Executive Member
- Miss Sehar Afsheen — Executive Member

#### 4. Executive Council Meetings

During the year, the Executive Council held its 1st, 2nd, 3rd, and 4th meetings of 2025, which were respectively the Society's 120th, 121st, 122nd, and 123rd Executive Council meetings overall.

All four meetings were held according to schedule and with complete quorum.

#### 5. Important Decisions and Administrative Developments

Among the important matters discussed and decided during the year were the following:

- Updating the PakMS website
- Displaying the photographs and brief profiles of Executive Council members
- Displaying the list of current PakMS members

- Discussing the elections of the Executive Council for the term 2025–2026 along with the AGM 2024
- Considering measures to increase PakMS membership
- Sending letters to Directors of ORIC in universities across Pakistan to encourage membership of the Society
- Discussing the promotion of PakMS through social media platforms
- Deciding to hold the Annual General Meeting physically in Islamabad on 30th December 2025

These developments reflected the Society’s concern for institutional strengthening, outreach, and continuity.

#### 6. New Members Inducted in 2025

The Pakistan Mathematical Society is pleased to record that the following 40 members were inducted during the year 2025:

1. Ms. Sehar Afsheen
2. Mr. Abdul Karim
3. Dr. Irfan Younas
4. Dr. Nasir Rehman
5. Dr. Nasir Siddique
6. Dr. Abdul Razaq

7. Ms. Raza Karamat
8. Rao Basharat Ali, QAU
9. Dr. Khurram Ali Khan
10. Dr. Saima Mustafa
11. Dr. Muhammad Sarwar Saeed
12. Dr. Shahid Mubeen
13. Ms. Shameela Akhtar
14. Dr. Rana Munir Ahmed
15. Syed Khurram Shehzad
16. Mr. Ahmed Bilal Hamid
17. Professor Shankar Lal
18. Dr. Rehan Ahmad
19. Emeritus Professor Qaiser Mushtaq
20. Professor Dr. Muhammad Ashiq
21. Dr. Muhammad Naseer Khan
22. Dr. Asima Razzaque
23. Mr. Kamran Shafique
24. Professor Dr. Asif Gondal
25. Dr. Sadia Mehwish
26. Dr. Inayat ur Rehman
27. Dr. Afshan Qayyum
28. Dr. Shahida Bashir
29. Dr. Farah Deba
30. Ms. Andleeb Abbasi
31. Dr. Mehwish Bari
32. Mr. Toheed Jillani
33. Professor Ghulam Mustafa
34. Dr. Amna Kalsoom
35. Dr. Muhammad Javaid
36. Dr. Umer Shoab
37. Mr. Hamza Kakar

- 38. Professor Shaista Batool
- 39. Dr. Farkhanda Afzal
- 40. Syed Azeem Inam

The induction of these members reflects the continued outreach and growing academic network of the Society.

#### 7. Silver Jubilee IPMC 2025

The Silver Jubilee International Pure Mathematics Conference (IPMC 2025) was successfully held in Islamabad from 29–31 August 2025 in hybrid mode. The event marked 25 years of the IPMC series, founded in 2000, and represented an important milestone in the promotion of mathematical scholarship and international academic exchange in Pakistan.

#### 8. Concluding Remarks

The year 2025 was thus marked by meaningful academic and organizational activity on the part of the Pakistan Mathematical Society. Through seminars, publications, Executive Council deliberations, membership expansion, and support for major scholarly events, the Society continued to uphold its role in promoting mathematics and mathematical culture in Pakistan.

PakMS remains committed to the advancement of mathematics, the strengthening of academic standards, and the development of a healthier scientific and scholarly

environment in the country. The Society acknowledges with appreciation the cooperation of its office bearers, contributors, members, supporters, and all those who remained associated with its mission during the year.

As the year comes to a close, the Pakistan Mathematical Society looks forward to continuing its academic and organizational responsibilities with renewed commitment in the years ahead.

## **DR OMAR HAYAT MALIK: THE MATHEMATICIAN WHO LED PAKISTAN’S OLDEST UNIVERSITY**

### **Emeritus Professor Qaiser Mushtaq**

When Pakistan emerged in August 1947, University of the Punjab stood as the country’s only established university. Its Vice Chancellor at that critical moment was C. H. Rice (April–September 1947), whose brief tenure bridged the transition from British India to the new state.

In September 1947, leadership passed to Omar Hayat Malik, the first Pakistani Vice Chancellor of the University. A mathematician of strong academic pedigree, Dr Malik was educated at Aligarh Muslim University (MA, LLB), University of Cambridge (MSc), and

University of Göttingen (PhD), and was later awarded an LLD by University of Glasgow. His training reflected exposure to some of the leading centres of learning of his time.

Before assuming the Vice Chancellorship, Dr Malik had established himself as an academic and administrator of note. He served as Senior Professor of Mathematics at Islamia College, Peshawar, and later as Principal of Islamia College, Lahore (1943–48). During the Second World War, he worked as Chief Statistical Officer in the Supply Department of the Government of India, applying his mathematical training to administrative and logistical challenges. He was also associated with institutions such as Aligarh Muslim University and the Indian Institute of Science, Bangalore, as a member of their governing bodies.

Pakistan's early months were marked by mass migration, institutional disruption, and acute resource shortages. Against this backdrop, Dr Malik assumed charge of the country's premier academic institution. His immediate task was to ensure continuity of teaching and examinations amid the displacement of faculty and students. Under his leadership, the university remained functional despite immense pressures—an achievement that required steadiness, discipline, and sound judgment.

Dr Malik occupies a distinctive place in Pakistan's academic history: he was the first mathematician to be appointed Vice Chancellor of a general university, setting an early example of entrusting academic leadership to scholars grounded in rigorous intellectual training.

His contributions extended beyond academia. He was associated with the political developments preceding independence and later served as a member of Pakistan's Constituent Assembly. After completing his tenure as Vice Chancellor in June 1950, he entered the diplomatic service, serving as Pakistan's Ambassador to Indonesia (1950–51), to West Germany (1952–55), and briefly to Japan (1955).

He was succeeded by Abdul Rashid, who brought legal and administrative experience to the office. Yet it was Dr Malik who guided the university through its most fragile phase, preserving academic continuity at a time of national upheaval.

His career set an early precedent for academic leadership in Pakistan—one grounded in scholarship, international exposure, and public service. In the decades that followed, such appointments remained rare; only a small number of mathematicians would later be entrusted with the leadership of general universities, with the author himself among them.

As Pakistan reflects on the condition of its higher education system, the example of Dr Omar Hayat Malik remains instructive. His scholarship, breadth of experience, and quiet resilience offer a reminder of the standards to which academic leadership ought to aspire.

## **BOOK REVIEW**

### **ELEMENTARY THEORY OF NUMBERS**

**Authors:** S. Manzur Hussain, M. Zia-ud-Din, Shamim Talib

**Publisher:** The Caravan Book House, Lahore, 1970

**Pages:** 119

Elementary Theory of Numbers is a concise introductory text that presents the basic ideas of Number Theory within a structured and accessible framework. Despite its brevity, the book reflects a clear intention to guide students from elementary arithmetic toward a more formal and conceptual understanding of the subject.

The authors begin with a short account of elementary set theory and fundamental algebraic structures, including groups, rings, integral domains, and fields. Although this treatment is brief, it provides a necessary conceptual backdrop and signals a transition from computational methods to structural thinking.

The main body of the text develops classical topics in Number Theory with clarity and logical progression. The theory of divisibility is presented in a systematic manner, offering formal justification for familiar procedures such as the evaluation of the greatest common divisor and least common multiple. This transition from practice to theory is handled effectively and is likely to engage students encountering rigorous mathematics for the first time.

The discussion of prime numbers is particularly noteworthy. Standard results, including the unique factorization theorem and the infinitude of primes, are presented alongside an introduction to arithmetical functions. The brief mention of unsolved problems adds intellectual depth and highlights the continuing vitality of the field.

A substantial portion of the book is devoted to congruences. Fundamental theorems of Fermat, Euler, and Wilson are proved, and the algebraic structure of congruence classes is examined. The treatment is clear and forms a solid foundation for further study. Methods for solving linear congruences, systems of congruences, and polynomial congruences are also discussed, with a useful indication of their relevance to areas such as cryptography.

The book's principal strength lies in its clarity and economy of presentation. However, its brevity also leads to certain limitations. Some foundational concepts are treated too briefly for complete clarity, and the absence of exercises reduces its effectiveness as a teaching text.

In conclusion, this book serves as a useful introductory account of elementary Number Theory. It is best viewed as a foundational text that can support, rather than replace, more detailed study.