



KHWARZIMIC SCIENCE SOCIETY: A First Introduction

October 2003

The Khwarzimid Science Society (KSS) is a not-for-profit organization based in Lahore that aims at introducing recent developments in science and technology to students of science; and providing a platform to active scientists, researchers, science policy-makers and students to share their knowledge in an effective and far-reaching manner. The Organization achieves its aims through a well-established tradition of specialist seminars, popular lectures, symposia and conferences, field visits and training workshops. These events are organized at the local as well as the national levels.

The KSS focuses on varied and different aspects of modern science. It derives its real strength from its cross-disciplinary character – touching upon seemingly disparate realms of science. As the boundaries between one discipline and the other are blurring away, we aim to reflect this drive against compartmentalization, through the wide range of the subjects we touch upon. In the past we have taken up seminars on different discourses such as astronomy, biology and medicine, physical sciences and engineering, computing and national science policy.

Besides exact sciences, we have also conducted more or less informal gatherings in the form of plenary discussions and book reviews. National issues of scientific relevance have not passed our attention as well. This includes our symposium on Pakistan's nuclear programme with guest speakers as eminent as Members of the national nuclear campaign.

We maintain a series of seminars delivered by leading scientists in the field. These seminars and lectures can be classed more appropriately as colloquia, which cater for the scientific inquisitiveness of the general public, the high school, college and university student belonging to different backgrounds as well as of the specialist, working in the same field. The major target audience remains, however, the college and university students, whose ken of knowledge is in the traditional sense, severely limited to the textbook. These seminars and public lectures are well-advertised and well-attended. Efforts are made to prepare and distribute pre and post lecture hand-outs, that are sometimes polished in the form of scientific reports and review essays. These writings are then contributed to our website and also to the local and national press.

Our national workshops have included workshops on mathematical programming and computer interfacing. These workshops generally span over a number of days and attract researchers and students from public and private organizations inside Pakistan.

In addition to the hands-on workshops, the KSS also provides an opportunity to students to visit research organizations and industrial establishments. This contributes immensely to their understanding and scientific experience. Star gazing and astronomical observation sessions are also organized to mark special heavenly appearances.

The KSS remains alive to ground-breaking discoveries in the scientific arena. For example, to celebrate the revelation of the human genome, a series of special lectures was organized that touched upon the science and implications of modern genetic unravellings in detail. In the past, we have organized series' of lectures on astronomy, automobile troubleshooting and the burgeoning field of chaos, complexity and fractals.

The Society also resorts to unconventional means of education, such as wide-angle video presentations.

An additional feature of the KSS, is that it provides a rare opportunity to students to share their completed research and imagination in the form of presentations and seminars. Many of our successful and well-received events have been lead by students and young scientists. As feedback shows, this is quite instrumental in exposing students to the testing atmosphere of a receptive and inquiring audience, at an early stage. The KSS feels that such opportunities for students are extremely limited within Pakistan, and happen only in the best selected-few institutions. Our organization aims at filling in this vacuum.

In another respect, the KSS is now growing as a loose network of like-minded individuals who strive to contribute to the scientific milieu around them. It is quite important to have a critical mass of such zealous individuals. We believe that we have a very long way to go in this respect, but we are definitely making our first strides in this direction.

The Society derives its strength from its Members. These Members become associated with the organization as life or full year members, upon the payment of a Membership fee. Apart from the events with logistic restrictions such as workshops and field visits, all our seminars and lectures are open for all. No fee is charged for attendance.

The KSS operates through its central chapter at the Centre for Solid State Physics, the Punjab University and the local chapters that operate in several institutions in Lahore. These institutions include the University of Engineering and Technology, University of Lahore and the COMSATS Institute of Information Technology. These chapters are organized by local committees and the overall affairs are supervised by an Executive Committee, under the direct leadership of the President of the KSS, Prof Dr Saadat Anwar Siddiqi. The organization of events is all done on a voluntary and self-help basis. The finances are covered by membership fee, however high-profile events also seek help from well wishing contributors and Members.

The Khwarzimid Science Society also endeavours to providing counselling to students in terms of choice of career and locating the pertinent sources of literature for research to students who choose to contact her. This adds to another dimension of the responsibilities of the KSS.

In this brief introduction to the KSS, we cannot fail to make a reference to the Society's well-known website <http://www.khwarzimid.org>, which has been in function since its very inception in 1997, and ranked us one of the top-5 websites by the widely circulated magazine *Spider*. This website took off slowly but over the years, it has become a compendium of all our past events, reports, publications, directories, member profiles, our aims and objectives, hierarchy and the like. It now contains hundreds of user contributed articles in the form of reports of past events and purpose-written essays. Moreover, our online magazine, named "*Takveen*" is in its infancy and still needs more careful planning and advertisement. In short, our web presence serves as the much needed digital infrastructure for the Society, and is peoples' first point of contact, introducing us to the web-surfing community both within Pakistan and without. We also administer online application processes and a regular mailing list that keeps our subscribers updated with announcements of future events and important news.

As a team, we also made the first important steps in popularising science to the general public by using Urdu as an effective medium of communication. Several projects are in the near offing in this regard. These include an essay-writing competition for students and preparation of monographs of scientific appeal, in the two important languages.

At the end of the day, the Khwarzimid Science Society tells a story of sacrifice – the sacrifice of its Members, its management committees in the various chapters and over various times: the ability to manage between their primary responsibilities of working in an office, teaching in a university, managing in an organization or doing something for which they are paid for, and on the other hand committing themselves wholeheartedly to an honorary cause, which is generally considered to be of low premium value – the value we tend to remember as the "culture of science". As the importance of independent inquiry and free thought is on the wane in the society, the KSS is trying to revive a spirit long forgotten, a flame long extinguished, a melody long faded and a brilliance set to ashes. This was the spirit of reason, guided by the ethics of revelation and the verve to contribute positively to the society by producing, disseminating and assimilating knowledge, beneficial to mankind.

The Khwarzimid Science Society was established with an aim. We have the courage to pursue this aim for the times to come and look forward to the continued support of the men and women with ambition.

Last but not least, we all share a great sense of indebtedness and gratitude to the founder of the Khwarzimid Science Society, who is now our President, Dr Saadat Anwar Siddiqi, Professor at the Centre for Solid State Physics, the Punjab University. In late 1996, he cherished the idea of establishing this Society, which would contribute to the society and especially to the educational institutions, in a healthy, knowledge-oriented manner. Today, his untiring leadership has helped us battle

against all bureaucratic odds, his great optimism supported us when we mistakenly took the surmountable as impossible, and his clear vision has guided our team and converged our sights on none, but the ascendancy.

The best way to introduce the Khwarzimidic Science Society would be to recount the events we have organized in our roughly seven years of existence. For the sake of brevity, only a mention of the titles and their speakers with their current affiliations, will be made. This long drawn list, we are sure, will give you a taste of the industry that has been input for this endeavour and the remarkable diversity and quality we strive to uphold in our activities.

Finally we pray to Almighty to grant us the clear-mindedness to continue our efforts in the most befitting manner and make us witness the fruit of our efforts ripening, in the form of a scientific reawakening inside the country. Amen!

Please do not hesitate to contact the Khwarzimidic Science Society, info@khwarzimidic.org.

Muhammad Sabieh Anwar, Shahab Ahmed, Umair Asim, Tayyab Imran, Saad Saleem, Qasim Butt, Javed Rabbani, Baber Saeed, Farrah Fayyaz, Suleman Mazhar

Executive and Management Committees, Khwarzimidic Science Society

Complete List of Past Activities (upto 14 October 2003)

1. New Energy Sources - Solving the Energy crisis, *Muhammad Umar Khan, And-Or Logic, Islamabad.*
2. The World Wide Web, *Muhammad Faisal Naeem, University of Texas at Austin, US.*
3. What Happens When you Boot, *Bilal Muddassir, University of Illinois at Chicago, US.*
4. Conduction Physics, *Muhammad Sabieh Anwar, Oxford University, UK.*
5. All Science is the Search for Unity in Hidden Likeness, *Muhammad Sabieh Anwar, Oxford University, UK.*
6. The Unification of Fundamental Forces in Nature, *Dr Tariq Abdullah, Centre for Solid State Physics, Punjab University (CSSP).*
7. Brain-Like Computing - A Tutorial on Neural Nets, *Muhammad Abubakr, Georgia Tech, US.*
8. Numerical Analysis in the Solution of Engineering Problems and DSP, *Zubair Khan, University of Engineering and Technology, Lahore (UET).*
9. The History of Ancient Geological Thought, *Muhammad Omar Saleem, Mari Gas Pvt. Ltd., Dharki Sind.*
10. Simulation of Electronic Circuits using Pspice (WORKSHOP), *Salman Durrani, University of Queensland, Australia and Syed Asad Abbas, SNGPL Faisalabad.*
11. Programming Computer Games, *Asim Abbasi, UET.*
12. Photovoltaics - Sunlight into Electricity, *Dr Shahzad Naseem, CSSP.*
13. Experimental Workshop on Scanning Electron Microscopy and X-Ray Diffraction (WORKSHOP) *Dr Saadat Anwar Siddiqi CSSP, Dr. K A Shoaib PINSTECH and Dr K Hussain, CSSP.*

14. A Questionnaire on Electromagnetics, *Muhammad Umar Khan, And-Or Logic Pvt. Ltd., Islamabad.*
15. A World getting Warmer, *Jawad Mahmood, Carnot, Germany.*
16. Automobiles beyond 2000, *Mobeen Shaukat, Crysler and Daimler, US.*
17. Sight Seeing into Space-time (BOOK REVIEW), *Mohammad Omar Saleem, Mari Gas Pvt. Ltd., Dharki, Sind.*
18. Magnetic Relays, *Shahab Ahmed, Techlogix Pvt. Ltd.*
19. Introduction to ISO 9000, *Syed Fareed Ali, Coopers and Lybrand.*
20. Horizons into Robotics, *Waqas Bin Najeeb, UET.*
21. The Third Age of Fuel: Hydrogen Economy, *Mudassar Naveed, UET.*
22. The New Age of Discovery (BOOK REVIEW) *Jawad Aslam, Sajeel Shafiq, Jawad Mahmood, Suleman Ateeq, Usman Arshad, Muhammad Sabieh Anwar, Shahid Iqbal, Shahab Ahmed, Ala-e-Imran, Salman Ali Khan, Mudassar Naveed and Muhammad Umar Khan, UET.*
23. When All is Smoke, *Dr Faisal Cheema, Columbia University, US.*
24. Graveyard of the Atlantic - The Bermuda Triangle (VIDEO FILM), *Sajeel Shafiq, UET.*
25. High Temperature Superconductors, *Dr Saadat Anwar Siddiqi, CSSP.*
26. Let the Sleeves Surround You - Workshop on Automobile Mechatronics (WORKSHOP), *Awais Naseem Vohra, Pakistan Telecomm Ltd., Gujranwala.*
27. Introduction to Material Science and a Case Study of Biomaterials, *Muhammad Sabieh Anwar, Oxford University, UK.*
28. Newer Energy Sources, *Muhammad Umar Khan, And-Or Logic Pvt. Ltd.*
29. Particle Accelerators, *Zunaira Ansari, Imperial College of Science, Technology and Medicine, UK.*
30. Magnetic Materials, *Muhammad Umar Khan, And-Or Logic Pvt. Ltd.*
31. Cornucopia or Crisis (BOOK REVIEW), *Asad Raza, Pakistan Telecomm Ltd.*
32. Thunderstorm Electrification, *Dr Khaliq-ur-Rehman, UET.*
33. Aesthetics of Craft Design, *Mohammad Usman Qureshi, Pakistan Atomic Energy Commission, Islamabad (PAEC).*
34. A Novel Laser and Plasma Hybrid Technique for Surface Modification, *Dr Shahzad Alam, PCSIR Laboratories, Lahore.*
35. Two Day Worksop on Mathematica (WORKSHOP), *Salman Durrani, University of Queensland, Australia and Syed Asad Abbas, SNGPL Faisalabad.*
36. Introduction to Ergonomics, *Irfan Ali, UET.*
37. Resolution of the Indo-Pak Conflict in Light of Global Nuclear Disarmament, *Sultan Ali Barq, PUGWASH.*
38. Debate and Deconstruction (BOOK REVIEW), *Asad Raza, Pakistan Telecomm Ltd.*
39. Analysis Techniques in Clippers and Clampers, *Mueen Sehdi, Mobilink Pvt. Ltd., Lahore.*
40. Discover your Psychic Powers, *Aaloon Ahmad, UET.*
41. The Art of Riding an Elephant (BOOK REVIEW), *Asad Raza, Pakistan Telecomm Ltd.*
42. Monthly Meeting and Astronomical Observation, *with the association of the Lahore Astronomical Society.*
43. Crafting Printed Circuit Boards, *Shahab Ahmed, Techlogix Pvt. Ltd.*
44. Wonders of Visual Basic, *Asim Abbasi, UET.*
45. Energy Level Treatment of Electronic Conduction in Solids, *Muhammad Sabieh Anwar, Oxford University, UK.*

46. Trip to Flood Forecasting Bureau (FIELD VISIT)
47. A Science Odyssey: Pakistans Nuclear emergence (CONFERNCE), *Dr Samar Mubarakmand, Dr Khalil Qureshi, Dr Masoor Beg, Dr Masud Ahmed PAEC.*
48. Wonders of the Universe (VIDEO FILM)
49. The Unexplored Frontiers of Astronomy, *Muhammad Umar Khan, And-Or Logic Pvt. Ltd.*
50. Trip to SUPARCO Research Centre, Lahore (FIELD VISIT)
51. The Cosmic Trilogy, *Dr Salman Hameed, University of Massachusetts at Amherst, US.*
52. A Shadow Apart - Symposium on Biomedical Imaging (SYMPOSIUM), *Dr Rushdia Zareen Yusuf and Dr Faisal Habib Cheema, Aga Khan University and Naeema Halim, Ahmed Bilal Ashraf, Muhammad Umar Khan and Muhammad Sabieh Anwar, UET.*
53. Solving Real Life Problems using Software (WORKSHOP), *Mueen Sajjad, Syed Bhais Pvt. Ltd., Lahore.*
54. Visit to Pakistan Television Corporation, Lahore (FIELD VISIT)
55. Even a Star can die (VIDEO FILM)
56. High Performance Logic Technology Development in the post-ULSI Era, *Dr Tahir Ghani, Intel Inc., US.*
57. Trip to Koh-e-Noor energy Complex (FIELD VISIT)
58. Lasers: Fundamentals, Physical Optics, Applications, *Zunaira Ansari, Imperial College of Science, Technology and Medicine, UK.*
59. MCSE: Myth and Reality, *Awais Ahmad Kang, UET.*
60. Active Materials and Molecular Technology, *Sabih-ud-Din Khan, PAEC.*
61. Shadow Hunt (ASTRONOMICAL OBSERVATION)
62. Prime Numbers, *Ahmed Bilal Ashraf, Techlogix Pvt. Ltd., Lahore.*
63. Solving Real Life Problems using Software (WORKSHOP), *Mueen Sajjad, Syed Bhais Pvt. Ltd., Lahore.*
64. Chaos, Complexity and Fractals, *Muhammad Abubakr, Georgia Tech., US.*
65. Transmission Control Protocol, *Awais Ahmad Kang, UET.*
66. Science of Chaos, (VIDEO PRESENTATION).
67. Deterministic Chaos: An Introduction, *Dr Tariq Abdullah, CSSP.*
68. An Introduction to Beowulf-class Cluster Computing, *Jawad Mahmood, Carnot, Germany.*
69. Beowulf: Architecture and Applications, *Jawad Mahmood, Carnot, Germany.*
70. Solar System Plasma, *Dr Hasan Shah, Government College University, Lahore.*
71. Deployable Structures for Space Exploration, *Khurram Iqbal, Cambridge University, UK.*
72. Workshop on Mathematical Computing using Matlab (WORKSHOP), *Omar Akram, Ghulam Ishaque Khan Institute of Engineering Sciences and Technology, Topi, NWFP.*
73. Life: a Product of History, *Dr Abdul Majeed Cheema, Zoology Department, Punjab University.*
74. Human Genome - Achievements and Prospects, *Dr Waheed Akhtar, Institute of Biochemistry and Biotechnology, Punjab University.*
75. Genetic Therapy, *Dr A R Shakoori, Zoology Department, Punjab University.*
76. Information Integration Agents, *Dr Afzal Upal, Dalhaousie University, Canada.*
77. Telecommunications: A Growing Pakistani Industry, *Jamshed Anwer, Mobilink Pvt. Ltd.*
78. An Introduction to Parallel Computing, *Mubeen Ahmad, UET.*

79. Remote Method Invocation (RMI), *Rizwan Ahmad, Bilal Farooq, UET.*
80. Physics and Applications of Modern Quantum Semiconductor Structures, *Dr Arshad Bhatti, Physics Department, Punjab University.*
81. Quantum Computing: An Introductory Approach, *Muhamamd Sabieh Anwar, Oxford University, UK.*
82. Imaging Electron Wavefunctions: Now an Experimental Reality, *Dr Arshad Bhatti, Physics Department, Punjab University.*
83. Seven Ideas that Shook the Universe, (BOOK REVIEW) *Suleman Khan, Ahmad Nawaz Khan, Ijaz Iqbal, Ather Jamal, Kamran Ahmed, Asif Javed, Sabih-ud-Din Khan, UET.*
84. Magnetic Resonance: From Brain Tissue to Chloroform Computers, *Muhammad Sabieh Anwar, Oxford University.*
85. Microelectronics: From Transistor to Single Electron Devices, *Dr Shahzad Naseem, CSSP.*
86. Fox Algorithm for Matrix Multiplication in a Parallel Environment, *Salman Khalid, Lahore University of Management Sciences, Lahore.*
87. Remote Method Invocation, *Rizwan Ahmad and Bilal Farooq, UET.*
88. Java Network Programming, *Athar Shahbaz and Farhan Bukhari, UET.*
89. Parallel Algorithms (repeat), *Salman Khalid, Lahore University of Management Sciences, Lahore.*
90. Quantum Computing: Making Atoms Think, *Muhamamd Sabieh Anwar, Oxford University, UK.*
91. Unmanned Aerial vehicles, *Sabih-ud-Din Khan, PAEC.*
92. Implementation of Simple Data Structures and the use of Built-in Structures in Java, *Saad-us-Salam, UET.*
93. Nanotechnology: Prospects and Challenges, *Hasan Raza, Purdue University, US.*
94. Nanotechnology: Prospects and Challenges (repeat), *Hasan Raza, Purdue University, US.*
95. Introduction to System Design and its Applications, *Qasim Butt, UET.*
96. Education in the US, (PANEL DISCUSSION) *Shahzad Ahmad Khan, Stanford University, US and Ahmad Sheraz, University of Minnesota, US.*
97. An introduction to Image Processing in Matlab, *Sabih-ud-Din Khan, PAEC.*
98. Optical Communications and Wavelength Division Multiplexing, *Khurram Shahzad Chaudhary, UET.*
99. Applications of Biotechnology in Medicine, *Fazli Rabbi Awan, Oxford University, UK.*
100. Micro/Nanobiotechnology: Interfacing Life Sciences and Engineering, *Dr Rashid Bashir, Purdue University, US.*
101. Information Processing: Quantum versus Classical, *Muhammad Sabieh Anwar, Oxford University, UK.*
102. Ceramic Nano-particles: From Synthesis to Applications, *Umair Manzoor, Korean Institute of Science and Technology, South Korea.*
103. Fuzzy Logic Control Using Matlab, (WORKSHOP) *Naveed Ahmad, FAST-National University of Computer and Emerging Sciences, Lahore.*
104. Computer Models for the Differential Control of Gene Expression, *Dr Saleet Jaffri, George Mason University, US.*
105. Cries of Baby Stars in Spiral Galaxies, *Dr Salman Hameed, University of Massachusetts at Amherst, US.*