

BIO-DATA

Prof. Dr. Khadim Hussain
Department of Physics
University of the Punjab, Lahore

Date of Birth: 15th April 1947
Address: Warden House, Boys' Hostel # 19,
University of the Punjab, New Campus, Lahore-54590
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▶ **ACADEMIC RECORD:**

- (i) Passed all the examinations from **Matriculation** up to **M.Sc. (Physics)** in **FIRST** Division/Class.
- (ii) Distinction in Matriculation and 3rd Position in the University Examination in both B.Sc. & M.Sc.
- (iii) Got the Degree of Ph.D. in Physics from the University of Manchester, Manchester (UK) in 1981.

Title of the Ph. D. Thesis: **A LABORATORY INVESTIGATION OF ICE NUCLEATION**

▶ **PROFESSIONAL TRAINING/EXPERIENCE:**

- (i) Got about **THREE WEEKS'** training on X-ray Diffractometer System at Rigaku Factory, Tokyo (Japan) during March/April, 1983.
- (ii) Was **In-charge of X-ray Diffraction Laboratory, the Centre for Solid State Physics, University of the Punjab, New Campus, Lahore w.e.f. 3/10/1982 to 30/6/2001**

▶ **TEACHING/RESEARCH EXPERIENCE:** (Above 32 Years)

● **TEACHING**

- (i) Professor with effect from July 1, 2001 to Date at Physics Department, University of the Punjab, New Campus, Lahore (Pakistan)
- (ii) Professor with effect from April 6, 1995 to June 30, 2001 at Centre for Solid State Physics, University of the Punjab, New Campus, Lahore (Pakistan)

- (iii) Associate Professor with effect from June 17, 1990 to April 5, 1995 at Centre for Solid State Physics, University of the Punjab, New Campus, Lahore (Pakistan)
- (iv) Assistant Professor with effect from October 3, 1982 to June 16, 1990 at Centre for Solid State Physics, University of the Punjab, New Campus, Lahore (Pakistan)
- (v) Lecturer in the Education Department, Government of the Punjab, Lahore with effect from March 15, 1971 to October 2, 1982 (It includes the period from November 9, 1977 to October 12, 1981 spent at Manchester for postgraduate studies and October 13, 1981 to October 2, 1982 as teacher of postgraduate classes)
- (vi) Taught courses on X-Ray Diffraction, Laboratory course on X-Ray Diffraction, Crystal Growth, Air Pollution, Climatology, Dielectric Properties at Postgraduate level and College Physics at Undergraduate level.
- (vii) Taught Electronics and Mechanics to Undergraduate classes at Department of Physics, University of the Punjab, Lahore.
- (viii) Teaching Electronics to Postgraduate classes and guiding the postgraduate students for the laboratory work on electronics at the Department of Physics, University of the Punjab, Lahore. Also teaching a course “Applications of X-ray Diffraction” to M.Phil. classes.

- **RESEARCH**

- (i) Supervised many M. Phil. Students at the Centre for Solid State Physics, University of the Punjab, New Campus, Lahore since 3/10/1982 for their research projects.
- (ii) Supervised M. Sc. Students of Physics and Space Science Departments of the University of the Punjab, New Campus, Lahore for research projects.
- (iii) Supervising M.Phil./Ph. D. students of Department of Physics and Centre for their research projects.

► **RESEARCH INTERESTS:**

- (i) **Applications of powder x-ray diffraction for quantitative phase analysis/structure determination of minerals, ceramics, superconductors, thin films, suspended solids in air and industrial waste water and building bricks.**
- (ii) **Climatic trend/change studies in Pakistan.**
- (iii) **Tornado development in the Punjab, Pakistan.**
- (iv) **Air and water pollution in Pakistan.**

► **OTHER ACADEMIC ACTIVITIES:**

- (i) Member, Board of Faculty of Science, University of the Punjab, Lahore.
- (ii) Member, Academic Council, University of the Punjab, Lahore.
- (iii) Convener, Board of Studies in Physics, University of the Punjab, Lahore

- (iv) Paper Setter/External Examiner for Postgraduate Examinations of University of Engineering and Technology, Lahore, Government College University, Lahore, Lahore College (W) University, Lahore, and Government College University, Faisalabad.
- (v) Member Board of Studies in Physics, Govt. College University, Faisalabad.
- (vi) Member, National Curriculum Review Committee of the University Grants Commission, Government of Pakistan, Islamabad.
- (vii) HEC approved Ph.D. supervisor.

▶ **CONFERENCES/SEMINARS ATTENDED:**

Attended **THIRTEEN** National/International Conferences since 1979.

▶ **MEMBERSHIP OF NATIONAL/INTERNATIONAL BODIES:**

- (i) Fellow of the Royal Meteorological Society, Bracknell (UK).
- (ii) Member of the International Union of Crystallography.
- (iii) Member of the Pakistan Institute of Physics, Lahore (Pakistan).
- (iv) Member of the Physical Society of Pakistan, Islamabad (Pakistan).
- (v) Treasurer, Pakistan Institute of Physics, Lahore (Pakistan)

▶ **REFERENCES:**

- (i) Prof. Dr. M. S. Zafar, Ex-Chairman, Department of Physics, University of the Punjab, Quaid-I-Azam Campus, Lahore.
- (ii) Dr. C. P. R. Saunders, Department of Pure and Applied Physics, University of Manchester Institute of Science and Technology, Sackville Street, P. O. Box 88, Manchester M60 1QD (England).

▶ **BOOKS PUBLISHED:**

Co-author in

- (i) Textbook of Physics for Class IX (English Medium)
- (ii) Textbook of Physics for Class IX (Urdu Medium)
- (iii) Textbook of Physics for Class XI (English Medium)

▶ **LIST OF PUBLICATIONS:**

More than fifty papers published in journals and conference proceedings.

LIST OF PUBLICATIONS

DR. KHADIM HUSSAIN, PROFESSOR,
DEPARTMENT OF PHYSICS, UNIVERSITY OF THE PUNJAB,
NEW CAMPUS, LAHORE-54590 (PAKISTAN)

PAPERS PUBLISHED IN JOURNALS

1. Imran, T. and K. Hussain: Three-phase Sequence Indicator and Automatic Phase-sequence Change-over system for Heat Exchangers. *Sci. Inter.*, 13, 2001, Pp: 137-140.
2. Afzal Shahzad, K. Hussain, M. Farooq, and M. Ilyas Tariq: Ten-year Trends (1990-1999) in the Precipitation Chemistry in Lahore, Pakistan. Appeared in the Proceedings of "15th Inter. Conf. On Nucleation and Atmospheric Aerosols, August 6-11, 2000, Univ. Missouri-Rolla, Rolla, MO 65409 USA". American Institute of Physics.
3. Afzal, S., M. Younas, and K. Hussain: Selenium Separation of Surface Sediments from Saline Lakes of Soan-Sakesar Valley, Salt Range, Pakistan. *Water Quality Res. J. Canada.* 34, 1999, Pp: 575-588.
4. Afzal, S., M. Younas, and K. Hussain: Physical and Chemical Characteristics of the Agricultural Lands of the Soan-Sakesar Valley, Salt Range, Pakistan. *Aust. J. Soil Res.*, 37, 1999, Pp: 1035-1046.
5. Shahid, M. A. K. and K. Hussain: A Study of Radioactive Minerals from Kirana Hills (Punjab), Pakistan. *Sci. Inter.*, 11, 1999, Pp: 199-200.
6. Shahid, M. A. K. and K. Hussain: Natural Radioactive Environmental Pollution and Meteorological Parameters of Faisalabad Environment. *Sci. Inter.*, 11, 1999, Pp: 209-210.
7. Shahid, M. A. K., M. K. Rahman, and K. Hussain: Differential Detection of Uranium and Thorium Mineralization in Kirana Hills (Pakistan) Using SSNTDs and the X-ray Diffraction Technique. *J. Nat. Sci. Maths.*, 38, 1998, Pp71-76.
8. Shahid, M. A. K., M. Yaqub, and K. Hussain: Change of Lead Level in Blood due to Radioactive Pollution and its Hazardous Effect on Human Health. *J. Nat. Sci. Maths.*, 38, 1998, Pp77-86.
9. Shahid, M. A. K., M. K. Rahman, and K. Hussain: Investigation of Potential Hazards of Radioactive Environmental Pollution due to Radon and Thoron Signals in Rabwah Environment. *J. Nat. Sci. Maths.*, 38, 1998, Pp87-92.
10. Shahid, M. A. K., M. K. Rahman, and K. Hussain: Comparison of Hazardous Effects of Lead Pollution on Rural and Urban People. *J. Nat. Sci. Maths.*, 38, 1998, Pp - .
11. Hussain, K., M. K. Rahman, and Rukhshinda Jabeen: Ozone Concentration Measurements in Lahore (Pakistan). *J. Natur. Sci. and Maths.*, 37, 1997, Pp: - .
12. Hussain, K., M. K. Rahman, and Samia Ali.: X-ray Diffraction and Scanning Electron Microscopic Studies of Airborne Particulates. *J. Natur. Sci. and Maths.*, 37, 1997, Pp: 165-181.
13. Hussain, K., M. A. K. Shahid, M. K. Rahman, and M. Y. Hussain: A Preliminary Comparative Study of Environmental Airborne Particulate Pollution in Lahore and Faisalabad. *Sci. Inter.* 9, 1997, Pp: 289-290.
14. Shahid, M. A. K. and K. Hussain: The Measurement of Gross Natural Environmental Activity (Very Low Atmosphere) at Rabwah, Pakistan. *Sci. Inter.* 9, 1997, Pp: - .

15. Shahid, M. A. K. and K. Hussain: Environmental Effects on the Efficiency of SSNTD, CN-85. . Sci. Inter. 9, 1997, Pp: - .
16. Shahid, M. A. K. and K. Hussain: Differential Detection of Radon and Thoron Signals in Rabwah Hills with the Help of Barrier Technique Using Assembly of Counters. Sci. Inter. 8, 1996, Pp:401-403.
17. Shahid, M. A. K., M. Yaqub and K. Hussain: Indoor Radiation Pollution due to Radon and its Daughters. Sci. Inter. 8, 1996, Pp:407-409.
18. Naseem, S., Dilawaiz Nazir, Riffat Mumtaz and K. Hussain: Evaporated Thin Films of CdS and CdTe: Optimization for PV Applications. J. Mater. Sci. and Technol., 12, 1996, Pp:89-94.
19. Munir, M. M., K. Hussain, and M. S. Zafar: Analysis of Surface Air Temperature Recorded in Lahore and Mianwali over the Past Three Decades. Acta Meteor. Sinica, 9, 1995, Pp:1128.
20. Naseem, S., M. Suleman, M.G. Sadiq, E. Ahmad, and K. Hussain: SiC: Hard Coating on Si Substrate. Sci. Inter. 6, 1994, Pp:401-403.
21. Ahmad, E., M.G. Sadiq, K. Hussain, and S. Naseem: SiC Formation by Carbonization Method: X-ray Diffraction Results. Sci. Inter. 6, 1994, Pp:113-115.
22. Salah-ud Din, M. I. Khatak, K. Hussain, and D. Yuanda: Microhardness Studies of the Refractory Composition MgO-CaAl₂O₄-CaZrO₃. J. Natur. Sci. and Maths., 34, 1994, Pp: -
23. Hussain, K. and M. K. Rahman: Supersaturation Spectra of Deposition and Condensation Nuclei. J. Natur. Sci. and Maths., 34, 1994, Pp:131-144.
24. Nizami, M. S., K. Hussain, M. K. Farooq, and M. Zafar Iqbal: Pyrolytic Extraction of Amorphous Silica from Rice Husk. Pak. J. Sci. Indust. Res., 36, 1994, Pp:462-465.
25. Hussain, K., A. Shamim, and Z. M. Pirzada: A study of Phase Transitions in PZT Ceramics Prepared from Reagent Grade Oxides. J. Natur. Sci. and Maths., 33, 1993, Pp:83-94.
26. Pirzada, Z. M., M. Suleman, K. Hussain, S. A. Siddiqi, and Jamila Waris: X-ray Diffraction and AES Studies of Yba₂Cu₃O_{7-d} Superconductors. J. Natur. Sci. and Maths., 33, 1993, Pp:73-82.
27. Naseem, S., M. Iqbal, and K. Hussain: Optoelectric and Structural Properties of Evaporated In Oxide Thin Films. Solar Energy Materials and Solar Cells, 31, 1993, Pp:155-172.
28. Nizami, M. S., M. K. Farooq, K. Hussain, and M. Zafar Iqbal: Synthesis and XRD Analysis of Xonotolite. J. Natur. Sci. and Maths., 33, 1993, Pp:159-168.
29. Nasir, A., K. Hussain, and S. Naseem: Effect of Chloride Doping on the Properties of Cadmium Sulphide Thin Films. J. Natur. Sci. and Maths., 33, 1993, Pp:207-226.
30. Hussain, K., and M. Suleman: Analysis of Rice Husk Ash by Powder X-ray Diffraction and Auger Spectroscopy: J. Natur. Sci. and Maths., 32, 1992, Pp:191-196.
31. Anwar, M., M. H. Qureshi, M. Yousaf, N. Beg, and K. Hussain: Study of Mullite Formation in Fireclay. Pak. J. Sci. Indust. Res., 35, 1992, Pp:416-419.
32. Hussain, K., M. Akhter, N. A. Malik, and N. Ikram: Extraction of Silicon from Rice Husk Ash. Arabian J. Sci. Engn., 15, 1990, Pp:479-486.
33. Hussain, K., R. Riffat, A. Shaukat, and M. A. Siddiqui: A Study of Suspended Particulate Matter in Lahore (Pakistan). Advances Atmos. Sci., 7, 1990, Pp:178-185.

34. Naseem, S., Naseer ud Din, and K. Hussain: Preparation of Thermally Evaporated CdTe Thin Films. *Chinese Phys. Lett.*, 7, 1990, Pp:510-513.
35. Hussain, K., F. Hasan, and A Shaukat: Corrosion Cracking of Gas-Carrying Pipelines. *Materials Performance*, 28, 1989, Pp:13-15.
36. Hussain, K., and A. Shaukat: A Study of Supersaturation of deposition Ice Nuclei. *Advances Atmos. Sci.*, 6, 1989, Pp:247-253.
37. Siddiqi, S. A., and K. Hussain: Preparation and Structure of High Tc Superconductor and Non-Superconductor in Y-Ba-Cu-O System. *J. Natur. Sci. and Maths.*, 28, 1988, 19-33.
38. Hussain, K., and S. A. Kayani: A Comparison of the Static and Flow Methods of Detection of Ice Nuclei. *Atmos. Res.*, 22, 1988, Pp:125-136.
39. Naseem, S., I. A. Rauf, K. Hussain, and N. A. Malik: Effect of Oxygen Partial Pressure on the Properties of Reactively Evaporated Thin Films of Indium Oxide. *Thin Solid Films*, 156, 1988, Pp:161-171.
40. Maqsood, A., I. Haq, Q. Wahab, and K. Hussain: Sintering of Polymorphic Tb₂Si₂O₇. *J. Mater. Sci. Lett.*, 7, 1988, Pp:583-584.
41. Hussain, K.: A Precision Thermometer with Temperature Controller. *J. Natur. Sci. and Maths.*, 27, 1988, 79-88.
42. Shaukat, A., K. Hussain, F. Meloni, and M. Serra: Bandgap Anomaly in Ternary Chalcopyrite Semiconductors: The Role of Parameterization. *Nuevo Cimento*, 9, 1987, Pp:163-173.
43. Javed, A, M. A. Shah, M. Y. Sani, and K. Hussain: Electric Properties of Dry Wood. *J. Natur. Sci. and Maths.*, 26, 1987, Pp:87-92.
44. Chaudhary, M. N., K. Hussain, and M. A. Shah: Petrology of Dhok Pathan Formation, Swaliks Group of Kalabagh and Mangla Areas. *Geol. Bull. Punjab Univ.*, 20, 1985, Pp:24-38.
45. Hussain, K., M. A. Siddiqui, and F. A. Shams: Clay Mineralogy of Some Thin Cover Soils of Punjab and Their Bearing on Engineering Properties. *Geol. Bull. Punjab Univ.*, 20, 1985, Pp:11-23.
46. Shaukat, A. and K. Hussain: Pseudopotential Orbital Radii and Tetragonal Distortions in Ternary and Quaternary Chalcopyrite Compounds. *J. Phys. Chem. Solids.*, 46, 1985, Pp:61-65.
47. Ikram, N., K. Hussain, and M. Akhter: Preparation of Polycrystalline Silicon Dioxide from Rice Husk Ash. *J. Natur. Sci. and Maths.*, 24, 1984, Pp:261-268.
48. Hussain, K. and C. P. R. Saunders: Ice Nucleus Measurements with a Continuous Flow Chamber. *Quart. J. Royal Met. Soc.*, 110, 1984, Pp:75-84.
49. Saunders, C. P. R. and K. Hussain: Ice Nucleus Concentrations (Abstract). *J. Res. Atmos.*, 13, 1979, P:330.

**PAPERS PUBLISHED IN NATIONAL/INTERNATIONAL CONFERENCE
PROCEEDINGS:**

1. Saunders, C. P. R. and K. Hussain: Ice Nucleus Concentrations. Proceedings Comm. VIII Conf. Sur Physique des Nuages, Clermont-Ferrand, France, 1990, Pp: 709-711.
2. Hashmi, F. A. S. and K. Hussain: Hydraulic, Mineralogical and Structural Properties of Laterites of Khanpur Dam Project (Pakistan). Proceedings First Inter. Conf. Geomechanics in Tropical Lateritic and Saprolitic Soil, Brasilia, Brazil, 1985, Pp:11-14.
3. Hussain, K.: Supersaturation Spectra of Ice Nuclei. Proceedings Thirteenth Inter. Conf. Ice Nuclei, Salt Lake City, USA, 1992.
4. Ikram, N., K. Hussain, and M. A. Shah: Phase Identification of SiO₂ in Rice Husk Ash. Proceedings Fourth National Conf. Solid State Physics, Islamabad, Pakistan, 1987, Pp:84-87.
5. Khan, B., C. M. Ashraf, K. Hussain, and M. Z. Iqbal: Chelation of a Hydro Benzoic Acid (Soda salt) with various Transition Metals and Their Study by XRD, TGA, DTA, Atomic Absorption, and Infrared Spectroscopy.. Abstract, Fifth National Conference Solid State Physics, Lahore, Pakistan, 1991.
6. Maqsood, A., M. Maqsood, S. A. Siddiqi, and K. Hussain: Single Crystal Growth of Superconducting Compound Bi-Ca-Sr-Cu-O. Abstract, Second Inter. Symposium Adv. Materials, Islamabad, Pakistan, 1991.
7. Munir, M. M., K. Hussain, and M. S. Zafar: Analysis of Surface Air Temperature Recorded in Lahore and Mianwali Over the Past Three decades. Abstract, PIP Annual Conf., Lahore, Pakistan, 1993.
8. Afzal Shahzad, K. Hussain, M. Farooq, and M. Ilyas Tariq: Ten-Year Trends (1990-1999) in the Precipitation Chemistry in Lahore, Pakistan. Accepted for publication in the "15th Inter. Conf. on Nucleation and Atmospheric Aerosols, August 6-11, 2000, University of Missouri-Rolla, Rolla, MO 65409 USA" Proceedings "Nucleation and Atmospheric Aerosols 2000", American Institute of Physics.