

**BRIEF CURRICULAM VITAE OF  
PROF. DR. HASAN M. KHAN**

Postal address: NCE Physical Chemistry, University of Peshawar, Peshawar  
E-mail: [hmkhan@upesh.edu.pk](mailto:hmkhan@upesh.edu.pk) [hmkhan3@gmail.com](mailto:hmkhan3@gmail.com)

Present Address: Professor (R) and former Director,  
National Centre of Excellence in Physical Chemistry,  
University of Peshawar, Peshawar 25120. Pakistan  
[hmkhan3@gmail.com](mailto:hmkhan3@gmail.com), Ph:0092 91 9216766

Home Address: House No: 135, St. 3, Sector L2, Phase 3, Hayatabad,  
Peshawar Phone: 091 5830536, **Mobile: 0331 9033966**

Date and place of birth: June 11, 1954, Peshawar (Pakistan).

**EDUCATIONAL QUALIFICATION :**

<u>Degree</u>	<u>Year</u>	<u>Institute</u>	<u>Division</u>	<u>Maj. Subjects</u>
Ph.D.	Dec 1982	University of Saskatchewan Saskatoon, Canada.		Physical Chemistry
M.Sc.	Jan 1976	University of Peshawar, Peshawar.	1st	Chemistry (Physical)
B.Sc.	Sep 1973	University of Peshawar, Peshawar.	1st	Chemistry, Physics Maths

***Throughout first class academic career (Matric, F. Sc, B.Sc. and M.Sc.) with honors and merit scholarships.***

**ACADEMIC HONOURS AND AWARDS :**

Winner of prestigious:

***Senior Fulbright Fellowship*** for research at the Department of Civil and Environmental Engineering, University of California at Irvine, USA (2007-08).

***A. von Humboldt Fellowship*** for research in Federal Research Centre for Nutrition, Karlsruhe, Germany (1993, 94) **awarded in a worldwide competition.**

***Fulbright Fellowship*** for post-doctoral research at the National Institute of Standards and Technology (NIST), Gaithersburg, USA (1986-87) won in an international competition.

***Herzberg Fellowship*** 1980, University of Saskatchewan (Canada) for **excellence in research.**

***University of Saskatchewan (Canada) Merit Scholarships*** (1976-81) in an **international competition** for Ph.D. work.

***Best Oral presentation*** prize in 11<sup>th</sup> Eurasia conference of Chemical Sciences, Dead Sea, Jordan (Oct. 2010) with presentations from 61 countries.

**M.Sc.** First position in the University and **gold medal.**

**B.Sc.** Second position in the University.

***Selected Fellow of Chemical Society of Pakistan (2004).***

**EXPERIENCE (TEACHING , RESEARCH and ADMINISTRATION) :**

Nov. 2009 to Jun.2014	Professor and Director, NCE Physical Chemistry	Administrative responsibilities, Organization of conferences, seminars, etc., BOG meetings, selection Boards.
From May, 2010	Selected for Professor on TTS (Tenure Track System)	supervision of M.Phil and Ph.D. students.
March 2000 to Jun. 2014	Professor and Head, Radiation & Environmental Chemistry Labs., N.C.E. Physical Chemistry University of Peshawar	Teaching of Physical & Envirm.Chem. courses and research supervision of M.Phil and Ph.D. students besides administrative responsibilities.
Jan. 2002 to Jan. 2004	Scientific Consultant, KACST, Riyadh Saudi Arabia	Set up laboratory and lead research in water decontam. by Advance Oxidation Technology and kinetic modelling
June 94 to Feb. 2000	Associate Prof. & Head, Radiation Chemistry Labs., NCE Phys. Chem. UoP	Teaching Physical Chemistry courses (radiation, kinetics etc.) and research guidance
April 93 to Dec. 93	Von Humboldt Fellow and Guest Scientist, BFE, Karlsruhe, Germany	Advance research in food irradiation and radiation dosimetry
May 84 to May 94	Assistant Professor, N.C.E. Physical Chemistry University of Peshawar	Teaching chemistry courses and research guidance of M.Phil./Ph. D. students
Oct. 86 to July 87	Fulbright fellow and Guest Scientist, NIST, Gaithersburg, MD, USA	Advance research in high and low dose radiation dosimetry
June 83 to Apr.84	Lecturer, N.C.E. Physical Chemistry University of Peshawar	Teaching courses and research supervision of post-graduate students
Oct.76 to Dec.82	Research/Teaching Fellow, University of Sask. Saskatoon, Canada	Ph. D. research and Teaching and supervision of undergraduate Chemistry Labs.
Apr.76 to Sep.76	Lecturer, Institute of Physical Chemistry, University of Peshawar.	Teaching physical and analytical chemistry courses and laboratory supervision.

***Experience of teaching graduate and undergraduate level courses in General Chemistry, Physical Chemistry, Chemical Kinetics, Radiation Chemistry, Environmental Chemistry, Photochemistry and Inorganic Reaction Kinetics.***

**RESEARCH EXPERIENCE :**

**Research interests: Advance Oxidation Technologies (AOTs) for water and wastewater treatment, Environmental Chemistry, Photochemistry, Radiation Chemistry, Chemical Kinetics, Radioactive contamination, food irradiation dosimetry.**

## **RECENT RESEARCH PROJECTS:**

1. **Removal of toxic compounds from water using radiation chemistry or photocatalysis,**
2. **Environmental applications of Advance Oxidation Technologies (AOTs).**
3. *Assessment of environmental pollution due to industrial and other wastes*
4. **New analytical methods for the detection of irradiated foods**
5. *Development and calibration of **Radiation Dosimetry** systems for Food Irradiation, Radiation Processing, Low dose radiations etc.*
6. **Radioactive contamination** of foods, soil and environmental samples using gamma spectroscopy.
7. **Kinetics and radiation and photochemistry of aqueous solutions.**

## **CONFERENCES ORGANIZED AS CHIEF ORGANIZER (ONLY DURING 2011-PRESENT)**

- a) **Chief Organizer, International Conference on Physical and Environmental Chemistry, 9-11<sup>th</sup> September, 2013**, organized by the National Centre of Excellence in Physical Chemistry, University of Peshawar at Nathia Gali, Abbotabad.
- b) **Chief Organizer** of Open Day of the Centre for prospective M.Phil and Ph.D. students, Feb. 20, 2013, NCE Physical Chemistry, Univ. Peshawar
- c) **Chief Organizer, 11<sup>th</sup> International & 23<sup>rd</sup> National Chemistry Conference, 15-17 December 2012**, organized by the National Centre of Excellence in Physical Chemistry, University of Peshawar (Under the Auspices of the Chemical Society of Pakistan).
- d) **Chief Organizer**, Workshop on Computer Resources for Molecular Modeling, March 5-7, 2012, NCE Physical Chemistry, Univ. Peshawar
- e) **Chief Organizer**, Workshop on Citations and References using Endnote, Feb. 16, 2012, NCE Physical Chemistry, Univ. Peshawar
- f) **Chief Organizer**, One Day Research Poster Symposium, Dec. 23, 2011, NCE Physical Chemistry, Univ. Peshawar
- g) **Chief Organizer**, National Symposium on Kinetics and Catalysis (KC 2011), Baragali PU campus, Sept. 26-28, 2011

## **PRESENTATION OF PAPERS IN CONFERENCES (ONLY DURING 2012-PRESENT)**

- a) **Invited lecture** at The 4th Asia Pacific Symposium on Radiation Chemistry (APSRC-2012), Oct. 30- Nov. 3, 2012, University of Science and Technology of China, Huangshan, China.
- b) Three papers were presented by Ph.D. students of our group at APSRC-2012, China.
- c) **Invited Lecture** at 3<sup>rd</sup> Pak-Turk Conference on Chemical Sciences, 13-15 Sept. 2012, Uludag University, Busra, Turkey
- d) Presented Oral presentation at 5<sup>th</sup> Saudi Science Conference, Umm Alqura University, Makkah, Saudi Arabia, April 16-18, 2012
- e) Presented **Invited Lecture** at the 10<sup>th</sup> International Symposium on Analytical & Environmental Chemistry, December 2-4, 2013, University of Sind, Jamshoro, Pakistan.

- f) Presented **Invited Lecture** at 12<sup>th</sup> International & 24<sup>th</sup> National Chemistry Conference, October 28-30, 2013, Bahauddin Zakariya University, Multan, Pakistan.
- g) **Invited Keynote Lecture** at 1st Intern. Conf. Environment. Health and Pollution Control, Guangdong Univ. Techn. China 23-25 April, 2016.
- h) Presented **Plenary Lecture** at the 3 days Chemistry Conference at Hazara University, Manshera, Nov. 26-28, 2013.
- i) Presented **Plenary Lecture** at International Conference of Biochemical and Chemical Sciences, Feb. 24-26, 2014, University of Agriculture, Faisalabad.
- j) Presented **Plenary Lecture** at 25<sup>th</sup> National and 13 International Chemistry Conference, Oct. 20-22, 2014, University of the Punjab, Lahore.

### **ADVANCE TRAINING AND COURSES IN INTERCULTURE SETTINGS AND INTERNATIONAL EXPOSURE**

Have vast experience of working in advance scientific laboratories and in different intercultural environments in several countries, such as **Canada, USA. Saudi Arabia and Germany.**

### **SUPERVISION of M.Phil. AND Ph.D. STUDENTS :**

Have so far supervised **Twenty four M.Phil.** and **Thirteen Ph.D.** students who have successfully graduated out. Presently supervising **three Ph.D. students.**

### **REAEARCH PROJECTS AWARDED:**

- Radiation dosimetry using aqueous solutions of organic dyes, 2001, HEC/NCEPC
- Environmental applications of radiation and photochemistry, 2001, HEC/NCEPC
- Radiation and photoinduced cleaning of industrial effluents from tannery wastes, 2001, HEC/NCEPC
- Cleaning of industrial effluents from pulp and paper mills, 2003, HEC/NCEPC
- Radiation induced removal of lindane, a Persistent Organic Pollutant (POP) from water, (Rs.3.7 million), 2005, HEC

### **MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS:**

- a. **Fellow of Chemical Society of Pakistan**
- b. Pakistan Nuclear Society (life member).
- c. Chemical Society of Pakistan (life member).
- d. Member of expert's subcommittee of the American Society for Testing and Material (**ASTM**) on Dosimetry for Radiation Processing.
- e. American Chemical Society.
- f. Chemical Institute of Canada.
- g. Pakistan Association for the Advancement of Science.
- h. International Radiation Physics Society (USA).
- i. Asia Pacific Food Analysis Network (APFAN, Australia)
- j. **Chief Editor, research journal "PHYSICAL CHEMISTRY"**(1995-2005)
- k. **Associate Editor, *The Journal of Chemical Society of Pakistan*** (2004-2013), ***Journal of Nuclear Chemistry.***
- l. Member of **Advisory Board of "Pak. J. Anal. Environ. Chem."** (2004-2015)

m. Vice-president (NWFP), Chemical Society of Pakistan (1995-98).

**ADMINISTRATIVE EXPERIENCE :**

1. **Director, NCE Physical Chemistry, University of Peshawar, 2009 to 2014**  
As the Director, organized and conducted several BOG meetings as secretary (dealing with all financial and academic aspects of the Centre) and organized several selection boards, academic council, conferences, scientific meetings, etc.  
*During this period, under my leadership of the National Centre of Excellence in Physical Chemistry, the Centre was ranked FIRST by HEC among all the Centres of Excellence in Pakistan in terms of research and academic productivity.*
2. **Head, Radiation and Environmental Chemistry Laboratory (RECL), 1992 to 2014.** *During this period, the RECL lab became the most well equipped, most productive and most cited labs in the Centre.*
3. Head of Scholarship and Fellowship committee for M.Phil and Ph.D. students
4. Member of disciplinary committee of employees
5. Member of purchase committee for equipments, PCs and chemicals,
6. Internal Auditor (for carrying out in-house auditing of the department)
7. Experience of preparing and successfully completing PC-1 form (submitted to the Ministry of Finance/Education/HEC for all administrative, academic and research funding of the whole department)
8. **Chief Editor** of the research journal **PHYSICAL CHEMISTRY** (which includes scientific evaluation of the research articles submitted, correspondence with authors, referees and publishing of the journal), **Associate Editor** of several international journals
9. Experience of arranging international and national conferences, meetings, seminars and short courses as Chief Organiser.
10. Member on the referee's panel of several Elsevier and other international peer reviewed journals.
11. Have acted as an external or internal examiner for evaluation of M. Phil and Ph.D. theses of several universities.
12. Have successful experience of development of research collaboration with different universities and organizations, such as PARC, NIFA, PINSTECH, PIEAS, etc. in Pakistan as well as world-renowned laboratories in other advanced countries and of conducting interdisciplinary research work.
13. Member, Board of Governors of National Centre of Excellence in Analytical Chemistry, University of Sindh, Jamshoro (2004-2014).

**PERSONAL:**

Date and place of birth:	June 11, 1954, Peshawar (Pakistan)
Nationality:	Pakistani
Marital status:	Married with three children
Health:	Satisfactory

### **SOME RECENT RESEARCH PUBLICATIONS (Only 2013 – 2017)**

(For a full list of publications, see detailed C.V.)

103. Oxidative degradation of atrazine in aqueous solution by UV/H<sub>2</sub>O<sub>2</sub>/Fe<sup>2+</sup>, UV/S<sub>2</sub>O<sub>8</sub><sup>2-</sup>/Fe<sup>2+</sup> and UV/HSO<sub>5</sub><sup>-</sup>/Fe<sup>2+</sup> processes: A comparative study, J. A. Khan, X. He, **H. M. Khan**, N. S. Shah, D. D. Dionysiou, **Chemical Engineering Journal**, 218, 376-383 (2013) (DOI: 10.1016/j.cej.2012.12.055).
104. Advanced oxidation for the treatment of chlorpyrifos in aqueous solution, M. Ismail, **Hasan M. Khan\***, Murtaza Sayed, William J. Cooper, **Chemosphere**, 93, 645-651 (2013) (DOI: 10.1016/j.chemosphere.2013.06.051)
105. Efficient removal of endosulfan from aqueous solution by UV-C/peroxides: A comparative study, N. S. Shah, X. He, **H. M. Khan**, J. A. Khan, D. D. Dionysiou, **Journal of Hazardous Materials**, 263, 584-592 (2013) (DOI: 10.1016/j.jhazmat.2013.10.019)
106. Effect of isopropanol on microstructure and activity of TiO<sub>2</sub> films with dominant {001} facets for photocatalytic degradation of bezafibrate, M. Sayed, P. Fu, **H. M. Khan**, P. Zhang, **International Journal of Photoenergy**, 490264(2014). (<http://dx.doi.org/10.1155/2014/490264>).
107. Radioactivity levels and radiation hazard assessment in soil samples of Peshawar University, **H.M. Khan**, M. Ismail, M. A. Zia, **J. Chemical Society of Pakistan**, 36, 1174-1180 (2014).
108. UV-visible light sensitive high surface area phosphorous-fluorine–codoped TiO<sub>2</sub> nanoparticles for the degradation of atrazine in water, J. A. Khan, C. Han, N. S. Shah, **Hasan M. Khan**, D. D. Dionysiou, *et al.* **Environmental Engineering Science**, 31, 435 (2014).
109. In-situ oriented growth of {001} facet TiO<sub>2</sub> films: Fabrication, characterization and its application for photocatalytic degradation of bezafibrate in water, M. Sayed, M. Ismail, S. Khan, **Hasan M. Khan**, **SCIENCE VISION**, 20 (2) 1-8 (2014).
110. Kinetic and Mechanism Investigation on the Photochemical Degradation of Atrazine with Activated H<sub>2</sub>O<sub>2</sub>, S<sub>2</sub>O<sub>8</sub><sup>2-</sup> and HSO<sub>5</sub><sup>-</sup>, J. A. Khan, X. He, N. S. Shah, **Hasan M. Khan**, D. D. Dionysiou, **Chemical Engineering Journal**, 252, 393-403 (2014). (<http://dx.doi.org/10.1016/j.cej.2014.04.104>)
111. Role of aqueous electron and hydroxyl radical in removal of endosulfan from aqueous solution using gamma irradiation, N.S. Shah, J.A. Khan, S. Nawaz, **Hasan M. Khan**, **Journal of Hazardous Materials**, 278, 40-48 (2014).
112. Analysis of Pesticides in Water Samples and Removal of Monocrotophos by  $\gamma$ -Irradiation, M. Ismail, M. Sayed, **Hasan M. Khan**, W.J. Cooper, **J. Analytical and Bioanalytical Techniques**, 5: 181 (2014). (doi:10.4172/2155-9872.1000181)
113. Role of e<sub>aq</sub><sup>-</sup>,  $\cdot$ OH and H $\cdot$  in radiolytic degradation of atrazine: A kinetic and mechanistic approach, J. A. Khan, N. S. Shah, S. Nawaz, M. Ismail, F. Rehman, **Hasan M. Khan**, **J. Hazardous Materials**, 288, 147-157 (2015).

114. Kinetic and mechanism investigation on the gamma irradiation induced degradation of endosulfan sulfate, N.S. Shah, J.A. Khan, S. Nawaz, M. Ismail, K. Khan, **Hasan M. Khan**, *Chemosphere*, 121, 18-25 (2015).
115. Comparative studies of various iron-mediated oxidative systems for the photochemical degradation of endosulfan in aqueous solution , N. S. Shah, X. He, J. A. Khan, **Hasan M. Khan**, D. L. Boccelli, D. D. Dionysiou, *J. Photochemistry & Photobiology A* 306, 80-86 (2015).
116. Degradation of Ciprofloxacin by Advance Oxidation Process: Kinetics study, Influencing Parameters and Degradation Pathway, M. Sayed, M. Ismail, S. Khan, S. Tabbasum, **H.M. Khan**, *Environmental Technology*, 37, 590-602 (2016) ([DOI:10.1080/09593330.2015.1075597](https://doi.org/10.1080/09593330.2015.1075597))
117. Decomposition of atrazine by ionizing radiation: Kinetics, degradation pathways and influence of radical scavengers, J. A. Khan, N. S. Shah, **Hasan M. Khan**, *Separation and Purification Technology*, 156, 140-147 (2015); ([DOI:10.1016/j.seppur.2015.09.064](https://doi.org/10.1016/j.seppur.2015.09.064))
118. Efficient degradation of lindane in aqueous solution by iron (II) and/or UV activated peroxymonosulfate, S. Khan,X. He, **Hasan M. Khan**, D. Boccelli, D.D. Dionysiou, *J. Photochemistry and Photobiology A: Chemistry*, (2015) (<http://dx.doi.org/10.1016/j.Photochem.201510.004>).
119. Decomposition of Clofibrilic Acid in Aqueous Media by Advance Oxidation Techniques: Kinetics study and Degradation Pathway, M. Sayed, **H.M. Khan**, *J. Chemical Society of Pakistan*, 38, 638-645 (2016).
120. A comparative study for the quantitative determination of paracetamol in tablets using UV-Visible spectrophotometry and high performance liquid chromatography, M. Sayed, M. Ismail, S. Khan and **Hasan M. Khan**, *Physical Chemistry* 17, 1-5 (2015).
121. VUV-Photocatalytic Degradation of Bezafibrate by Hydrothermally Synthesized Enhanced {001} Facets TiO<sub>2</sub>/Ti Film, M. Sayed, P. Fu, L. A. Shah, **Hasan M. Khan**, J. Nisar, M. Ismail, P. Zhang, *J. Physical Chemistry A.,(ACS)* 120, 118-127 (2016) ([DOI: 10.1021/acs.jpca.5b10502](https://doi.org/10.1021/acs.jpca.5b10502)).
122. Degradation of quinolone antibiotic, norfloxacin, in aqueous solution using gamma-ray irradiation, M. Sayed, **Hasan M. Khan**, *Environmental Science and Pollution Research*, 23, 13155 - 13168 (2016). (DOI 10.1007/s11356-016-6475-x).
123. Hydroxyl radical based degradation of ciprofloxacin in aqueous solution, M. Sayed, **Hasan M. Khan**, *et. al. Journal of Chilean Chemical Society*, 61, 2949 – 2953 (2016).
124. Gamma radiolytic decomposition of endosulfan in aerated solution: the role of carbonate radical, N.S. Shah, J.A. Khan, A. H. Al-Muhtaseb, M. Sayed, **Hasan M. Khan**, *Environmental Science and Pollution Research*, 23, 12362–12371 (2016). (DOI 10.1007/s11356-016-6415-9).
125. Gamma - irradiation induced degradation of diclofenac in aqueous solution: Kinetics,

- role of reactive species and influence of natural water parameters, J. Nisar, M. Sayed, F.U. Khan, **H. M. Khan**, M. Iqbal, R. A. Khan, M. Anas, *J. Environmental Chemical Engineering*, **4**, 2573-2584 (2016).
126. Synergistic effects of  $\text{HSO}_5^-$  in the gamma radiation driven process for the removal of chlorendic acid: A new alternative for water treatment, N. S. Shah, J. A. Khan, A. H. Al-Muhtaseb, M. Sayed, B. Murtaza, **Hasan M. Khan**<sup>b</sup>, *Chemical Engineering Journal*, **306**, 512-521 (2016).
  127. Efficient Photocatalytic Degradation of Norfloxacin in Aqueous Media by Hydrothermally Synthesized Immobilized  $\text{TiO}_2/\text{Ti}$  Films with Exposed {001} Facets, M. Sayed, L. A. Shah, J. A. Khan, N. S. Shah, J. Nisar, **Hasan M. Khan**, P. Zhang, and A. R. Khan, *J. Physical Chemistry A*, **120**, 9916–9931 (2016).  
DOI: 10.1021/acs.jpca.6b09719.
  128. Investigation of Cs-137 in the Environmental Soil Segments of the Peshawar and Nowshera Districts of Khyber Pakhtunkhwa, Pakistan, M.A. Zia, M. Ismail, **Hasan M. Khan**, *Int. Journal Radiation Research* (Accepted). 2017.
  129. Kinetics and mechanism of sulfate radical- and hydroxyl radical-induced degradation of highly chlorinated pesticide lindane in UV/peroxymonosulfate system, S. Khan, X. He, **Hasan M. Khan**, D.D. Dionysiou, *et al. Chemical Engineering Journal*, **316**, 135-142 (2017).
  130. Kinetics and mechanism of sulfate radical- and hydroxyl radical-induced degradation of highly chlorinated pesticide lindane in UV/peroxymonosulfate system, S. Khan, X. He, **Hasan M. Khan**, D.D. Dionysiou, *et al. Chemical Engineering Journal*, **316**, 135-142 (2017).
  131. Efficient degradation of lindane by visible and simulated solar light-assisted S-TiO<sub>2</sub>/peroxymonosulfate process: Kinetics and mechanistic investigations, S. Khan, C Hanc, , **Hasan M. Khan**, D. L. Boccelli, D. D. Dionysiou, *J. Molecular Catalysis A, Chemical* (Accepted). 2017.
  132. Removal of Crystal Violet Dye From Aqueous Solution By Gamma Irradiation, F. Rehman, S. Murtaza, **H.M. Khan**, *Journal of Chilean Chemical Society*, **62**, 3359-3364 (2017).
  133. Removal efficiency and economic cost comparison of hydrated electron mediated reductive pathways for treatment of bromate, S. Nawaz, N.S. Shah, J.A. Khan, M. Sayed, A.H. Al-Muhtaseb, H.R. Andersen, **Hasan M. Khan**, *et al., Chemical Engineering Journal* (2017), doi: <http://dx.doi.org/10.1016/j.cej.2017.03.011>