




Faculty Details proforma for DU Web-site

Title	Prof.(Dr.)	First Name	Ashok Kumar	Last Name	Bakhshi	Photograph
Designation		Professor				
Address Office		Department of Chemistry University of Delhi Delhi – 110 007				
Residence		C – 139, Moti Nagar New Delhi – 110 015				
Phone No Office		(+91-11-27666646 ext. 215 (office), 214 (Lab)				
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Email		akbakhshi2000@yahoo.com				
Web-Page						
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		Physical Chemistry, Department of Chemistry, D.U.			1982	
M.Phil. / M.Tech.						
PG		M. Sc. Chemistry, Department of Chemistry, D.U.			1973	
UG		B. Sc. (Hons) Chemistry, University of Delhi, D.U.			1971	
Any other qualification						
Post-Doctoral research						
<ol style="list-style-type: none"> 1. "DAAD FELLOW " for two years (1984-86) at the <i>Institute for Theoretical Chemistry of the Friedrich-Alexander-University of Erlangen Nurnberg</i>, Germany. 2. "VISITING SCIENTIST" at the <i>Tata Institute of Fundamental Research, Bombay, India</i> for the periods - May - June, 1989 and July 1991. 3. "VISITING SCIENTIST" at the <i>Indian Institute of Science, Bangalore</i>, India for the period May - June, 1987 and during February 1992. 4. "VISITING SCIENTIST" at the <i>Institute for Fundamental Chemistry and at Kyoto University in Japan</i> for the period May – August 1995. 5. "VISITING SCIENTIST" at the <i>Institute for Theoretical Chemistry of the Friedrich-Alexander - University of Erlangen - Nurnberg, West Germany</i> for the periods May - August, 1988; June - July, 1990; May-July, 1992; July 1993 and May - August, 1996. 						

Career Profile
<p>I. Professor (Sir Shankar Lal Chair), Delhi University, September 1996- till date.</p> <p>II. Visiting Scientist / Reader, (Panjab University, Chandigarh), March 1989 - September 1996.</p> <p>III. Lecturer/Reader Grade (ARSD College, University of Delhi), August 1973 – March 1989.</p>
Administrative Assignments
<ol style="list-style-type: none"> Head, Department of Chemistry, University of Delhi, May 2010 – Aug 2011. Director, Institute of Lifelong Learning (ILLL) and Director, Centre for Professional Development in Higher Education (CPDHE), University of Delhi, Jan 2008– Dec 2010. Vice Chancellor, Uttar Pradesh Rajarshi Tandon Open University (UPRTOU), Allahabad, India, Aug 2011 – Oct, 2013. Executive Director, Teritary Education Commission (TEC), Mauritius, Oct 2013 – Feb 2015.
Areas of Interest /Specialization
<p>Theoretical polymer chemistry with special reference to electrically conducting polymers and biopolymers such as proteins and DNA. ICT in higher education and e-Learning, Development of e-content and MOOCs</p>
Subjects Taught
<p>Physical Chemistry</p>
Research Guidance
<ol style="list-style-type: none"> Supervision of awarded Doctoral Thesis (2010 onwards) <ol style="list-style-type: none"> <i>Dr. Avneet Kaur</i> <i>Dr. Aparna Garg</i> <i>Dr. Mohsineen Wazir</i> <i>Dr. Vinita Kapoor</i> <i>Dr. Priyanka Thakral</i>
Research Publications
<p>Over 170 research and education articles besides many books (Publication profile 2010 onwards)</p> <ol style="list-style-type: none"> Synthesis of conducting ferromagnetic nanocomposite with improved microwave absorption properties, Kuldeep Singh, Anil Ohlan, A. K. Bakhshi & S. K. Dhawan, Material Chemistry & Physics, 119, 201-207, (2010).

2. Investigation of Electronic Structures of model polypeptide chain using Genetic Algorithm, Vinita Arora & A.K. Bakhshi, **Indian J. Chemistry**, 49A, 18-25 (2010).
3. Theoretical studies on model Type-II staggered conducting superlattices, Swati Agrawal & A.K. Bakhshi, **Indian J. Chemistry**, 49A, 151-158 (2010).
4. Change in optimum genetic algorithm solution with changing band discontinuities and band widths of electrically conducting copolymers, Avneet Kaur & A.K. Bakhshi, **Chemical Physics**, 369, 122-125 (2010).
5. Molecular designing of novel ternary copolymers of donor-acceptor polymers using genetic algorithm, Vinita Arora & A.K. Bakhshi, **Chemical Physics**, 373, 307-312 (2010).
6. Designing type-II staggered model ternary copolymers using Antalgorithm, Aparna Garg & A.K. Bakhshi, **Chemical Physics**, 378, 42-46 (2010).
7. Stress degradation studies of nelfinavirmesylate using Fourier transform infrared spectroscopy, Parul Singh, Ranjana Mehrotra & A.K. Bakhshi, **J. Pharmaceutical and Biomedical Analysis**, 53, 287-294(2010).
8. Novel triblock conducting copolymer: A theoretical study, Swati Agrawal & A.K. Bakhshi, **Indian J. Chemistry**, 49A, 1453-1460 (2010).
9. Theoretical investigations on model ternary polypeptides using genetic algorithm– Some new results, Vinita Arora & A.K. Bakhshi, **Chemical Physics**, 382, 113-120 (2011).
10. Electro-active ternary copolymer design using genetic algorithm. Avneet Kaur & A. K. Bakhshi, **Indian J. Chemistry**, 50A, 9-14 (2011).
11. Effect of basis set, electron correlation and hydration on the designing of ternary polypeptides using Ant algorithm, MohsineenWazir&A.K.Bakhshi, **Computational and Theoretical Chemistry**, 963, 85–91(2011).
12. Electro-active ternary copolymer design using genetic algorithm, Avneet Kaur & A. K. Bakhshi, **Indian J. Chemistry**, 50A, 9-14 (2011).
13. Theoretical investigations on model ternary polypeptides using geneticAlgorithm: Some new results, Vinita Arora & A.K. Bakhshi, **Chemical Physics**, 382, 113-120 (2011).
14. Electronic Structures and Conduction Properties of Biopolymers, MohsineenWazir, Vinita Arora & A K Bakhshi, **Biopolymers: Biomedical and Environmental Applications**, eds. S. Kalia& L. Avérous, Scrivener Publishing LLC, Massachusetts, 437-458,(2011).
15. Designing novel donor-acceptor copolymers using genetic algorithm, Vinita Arora & A.K. Bakhshi, **Indian J. Chemistry**, 50A, 1485 - 1491 (2011).

16. Theoretical Designing of Novel Low Band Gap Conducting Polymers, **Proceedings of the 99th Session of the Indian Science Congress (Chemical Sciences)**, 1- 21 (2012).
17. Band gap engineering of a ternary copolymer based on polythiophene and its derivatives using genetic algorithm, Avneet Kaur & A. K. Bakhshi, **International Research Journal of Pure and Applied Chemistry**, 2 (1), 55-67, (2012).
18. Molecular engineering of novel low band gap conducting polymers, A.K. Bakhshi, Avneet Kaur & Vinita Arora, **Indian J. Chemistry**, 51A, 57-68 (2012).
19. *In-silico* engineering of intrinsically conducting copolymers using Particle Swarm Optimization algorithm, Priyanka Thakral, Vinita Arora, S Kukreti & A.K. Bakhshi, **Indian J. Chemistry**, 52A, 317-326 (2013).
20. Designing novel copolymers of donor-acceptor polymers using an artificial intelligence method, Vinita Kapoor & A.K. Bakhshi, **Superlattices and Microstructures** 60, 280-290 (2013).
21. Molecular engineering of electrically conducting polymers using artificial intelligence methods (Chapter 12), A K Bakhshi, Vinita Kapoor & Priyanka Thakral, **Applications of Metaheuristics in Process Engineering**, eds. Jayaraman Valadi, Patrick Siarry, Springer International Publishing, 289 – 314 (2014).
22. Computational atomistic blueprinting of novel conducting copolymers using particle swarm optimization, Priyanka Thakral & A K Bakhshi, **Journal of Computer Aided Molecular Design**, 28, 111-122 (2014).
23. *In-silico* architecturing of novel hetero-aromatic bicyclic copolymers using particle swarm optimization algorithm, Priyanka Thakral, Vinita Kapoor & A K Bakhshi, **Indian J. Chemistry**, 53A, 9-16 (2014).
24. Designing of novel Donor-Acceptor-Donor framework based low band gap copolymers using an artificial intelligence approach, Priyanka Thakral & A K Bakhshi, **Indian J. Chemistry**, 54A, 9 – 19 (2015).
25. Computational modeling of novel donor-acceptor ternary copolymers: Some interesting results, Priyanka Thakral & A K Bakhshi, **Indian J. Chemistry**, 54A, 1069 – 1075 (2015).
26. *In-silico* metaheuristic tailoring of quaternary copolymers, Priyanka Thakral, S Kukreti & A K Bakhshi (communicated).
27. *In-silico* analysis of electronic structures of model polypeptide chains using particle swarm optimization, Priyanka Thakral, Vimal Rarh & A K Bakhshi (communicated).

Other Publications

1. Electrically Conducting Polymers: A Paradigm Shift in Electronics A.K. Bakhshi & Vinita

Arora, **Chemical World**, Vol. 10 (2) June 2010, 47-49.

2. Agent of Change A.K.Bakhshi, **Education Times** (Times of India) 7th June, 2010.
3. Where Matter is Supreme A.K.Bakhshi, **Hindustan Times (HT Horizons)**, 14th July 2010.
4. ICT in Education: Need of the Hour, A.K. Bakhshi, **Digital Learning**, Vol. 7 (1), January 2011, 42-43.
5. Electrically Conducting Polymers—Materials of the future, A.K. Bakhshi & Vinita Arora, **Science Reporter, CSIR**, Vol. 48 (4), April 2011, 43-47.
6. Chemistry Education in the 21st Century : Challenges and Opportunities, A.K. Bakhshi & Vimal Rarh, **Science Reporter, CSIR**, 38-42, January 2012.
7. Gain Easy Access to Education, A.K.Bakhshi, **HT Horizons** (Hindustan Times), 30th November 2011.
8. It is unfortunate that Indians prefer degrees to vocational skills : An Interview, A.K.Bakhshi, **India Education Review** (09th November 2011).
9. Polymeristic World, A.K.Bakhshi & Vinita Kapoor, **Down to Earth** May 2012.
10. Empower faculty to boost Education System, A.K.Bakhshi, **Education Insider**, 50-51 (May 2012).
11. ICT is need of the Hour in Education Sector, A.K.Bakhshi, **Hindustan Times**, Lucknow edition, 16th June 2012.
12. ICT for Enhancing the Quality of Open and Distance Education through e-learning (in press) A.K.Bakhshi & Vimal Rarh, **Open and Distance Learning in India : Challenges and Prospects** (edited by Amit Chaturvedi and Kirti Vikram Singh).
13. Chemical Education in the ICT Age, A.K.Bakhshi & Vimal Rarh, **Education in Chemical Science and Technology**, 1 (1), 47-61 (2013).
14. Electrically Conducting Polymers: Materials revamping Technology, A.K. Bakhshi & Priyanka Thakral, **Science Reporter, CSIR**, Vol. 52(12), December 2015, 28-32.

Patent

- I. **“A Sol-gel process for the preparation of Monoclinic CeTiO₂O₆ Thin Film”** jointly developed by Amita Verma, S.A. Agnihotry and A.K. Bakhshi.

Conference organizations / presentations

- I. **Delivered invited Talks/Plenary Lectures/Keynote Addresses** at various conferences, universities and institutes both in India and abroad.
- II. **Chaired Technical Sessions** at various national / international conferences.
- III. Associated with **Organization** of many **national / international conferences, workshops and seminars.**

Awards and Distinctions
<p>Recipient of various awards and academic honors</p> <p>(Awards and honors 2010 onwards)</p> <ol style="list-style-type: none"> 1. President, Indian Science Congress Association (Chemical Sciences), 2011-2012, Indian Science Congress Association, Kolkata. 2. Prof. Ramdas Tiwari Memorial Lecture of Vigyan Parishad Prayag, Allahabad (2012). 3. Guest of Honour at the 24th IGNOU Convocation of Regional Centre, Lucknow(September 2011). 4. President of the Section of Chemical Sciences of the Indian Science Congress Association (ISCA) for the year 2011-12. 5. Awarded 'Bioved Honorary Fellowship – 2012' by the Bioved Research Institute of Agriculture and Technology, Allahabad. 6. Capital Foundation National Award in recognition of distinctive and outstanding contributions to Education by Dr. A. P. J. Abdul Kalam, Former President of India (December 2011). 7. National Education Award for Outstanding Contribution to Education by News Channel <i>Headlines Today</i> (December 2012). 8. Guest of Honour at the 26th IGNOU Convocation of Regional Centre, Varanasi (April 2013). 9. IDA-2014 Special Award for excellence in <i>Digital Content in Education</i> for our template for e-Contentat Centre for e-Learning, SGTB Khalsa College, University of Delhi (2014) by India Didactics Association at WORLD DIDAC-2014, New Delhi. 10. Chief Guest at the Convocation 2015 of the PDM Group of Institutions, Bahadurgarh, Haryana (January 2015). 11. Bharat Jyoti Award of Indian International Friendship Society, New Delhi (June 2016).
Association with Professional Bodies
<p>Membership with professional bodies</p> <ol style="list-style-type: none"> 1. National Representative of the "World Association of Theoretical Organic Chemists (WATOC)". 2. Life Member of the International Society for Theoretical Chemical Physics. 3. Member of the National Magnetic Resonance Society, Bangalore. 4. Life Member of the Chemical Research Society of India (CRSI). 5. Life member, Indian Science Congress Association (ISCA) 6. Life member, Indian Biophysical Society (IBS).
Other important Associations and Assignments
<ol style="list-style-type: none"> 1. Member, Standing committee of the UGC Project of Rs. 84 crore for development of e-content under NMEICT of MHRD for post graduate subjects (2011-14).

- 2. Member of the Standing Committee of the National Mission on Education through ICT (NMEICT) of the Ministry of the Human Resource Development (MHRD) of the Government of India (2009 -2014).**
- 3. Chairman, Advisory Committee, Centre for e-Learning at SGTB Khalsa College, University of Delhi for e-PGPathshala projects of UGC and MHRD for Development of e-content and MOOCs for Post-Graduate courses in Chemistry, Commerce, Economics, Psychology, Forensic Science, Business Economics worth.**
- 4. Chairman, Advisory Committee, Guru Angad Dev Teaching-Learning Centre, A Centre of the MHRD, Govt. of India at SGTB Khalsa College, University of Delhi.**

