Dr. Rabia Ahmad

Professor (Physical Chemistry)

Department of Chemistry

Faculty of Natural Sciences

Jamia Millia Islamia (Central University)

New Delhi 110 025 (India)

Telephone : +91-26981717 Extn. 3252 (Off)

Mobile : +91-9953196033

Date of Birth : 20.12.1954

Date of Joining Service Jamia: 26th November, 1990

Academic Qualification:

Examination	Name of the Board/ University	Year of passing	Percentage of Marks	Division Class/ Grade	Subject
High School	A.M.U.	1970	83.2%	1st Division 1st Position	Eng.,Theo., Hindi, Urdu, Sci., Math, Hist & Geog.
PUC (With Math) PUC (Only Bio.)	A.M.U. A.M.U.	1971 1972	85.4% 80.0%	1st Division 2nd Position No division	Phy.,Chem., Math, Eng., Bio.
B.Sc.	A.M.U.	1975	76.5%	1st Division 2nd Position	Phy.,Chem., Zoo., Bot. , Eng.
M.Sc.	A.M.U.	1977	77%	1st Division 1st Position	Chemistry

Research Degree (s)

Degree	Title	Date of Award	University
M. Phil	Studies on the Interactions of Siliver Iodide and Mercurychlorobromide in the solid state	Feb. 1981	A.M.U.
Ph.D.	Solid State Reactions	Dec. 1984	A.M.U.

Employment Profile:

S.No.	Position	Period of Service From	To	University	Basic (Grade Pay)
1.	Professor	26.09.2011	Till date	Department of Chemistry, JMI, New –Delhi-25	37400-67000 (Rs.10,000/-)
2.	Associate Professor	26.09.2008	25.09.2011	-do-	37400-67000 (Rs.9,000/-)
3.	Reader	26.09.2005	25.09.2008	-do-	12000-420-18300
4.	Lecturer (Sr. Scale)	26.09.1998	25.09.2005	-do-	10000-325-15200
5.	Lecturer	26.09.1994	25.09.1998	-do-	2200-4000 (later 8000-13500)
6.	Lecturer	02.12.1993	30.09.1993	-do-	2200-4000
7.	Lecturer (Guest Faculty)	20.10.1991	05.04.1992	-do-	Small amount was paid
8.	Lecturer	26.09.1990	30.07.1991	-do-	2200-4000

Academic Staff College Orientation / Refresher Course attended

S.No.	Name of the Course	Place	Duration	Sponsoring Agency
1.	Orientation Course	J.M.I. New Delhi	14th Feb.-13th March 2000	U.G.C.
2.	Refresher Course	Delhi University	1st September –20th September 2003	U.G.C.
3.	Refresher Course	A.M.U. Aligarh	28th July – 17th August 2004.	U.G.C.

Projects Guided at Post Graduate Level: 41

1. Title-A review of the crystal structure of HgClBr and a reinvestigation of the capillary study of the solid – solid reaction AgI-$HgCl_2$.Year 1995-1996.
2. Title – Study of Kinetics of solid state reaction AgI-$HgCl_2$ and the effect of impurity on the reaction rate. Year 1996-1997.
3. Title – An Empirical Deduction of some parameters of alkali halides. Year 1998-1999.
4. Title – A literature survey of the mixed halides of Zn, Cd and Hg and an investigation of some properties of HgClBr. Year 1999-2000.
5. Title –Calculation of lonicities of some classes of compounds and the parameterization of physical quantities. Year 1999-2000.
6. Title – A Study of the dependence of capillary solid-solid reactions on the conditions and some studies of HgClBr. Year 2000-2001.
7. Title – Study of the solid residue of Fehling solution, Tollen Reagent and solid-solid reactions in a capillary tube. Year 2000-2001.
8. Title – Study of the effect of moistening with solvents on this solid state reaction between AgI and $HgCl_2$ Year 2001-2002.
9. Title – Study of the effect of moistening with solvents on the solid state reaction between CuI and $HgCl_2$ Year 2001-2002.
10. Title – Study of the effect of impurities on the solid state reaction between CuI and $HgCl_2$. Year 2002-2003.
11. Title – Study of the effect of polar compounds on the solid state reaction between CuI and $HgCl_2$. Year 2002-2003.
12. Title – Study of some solid-solid reactions. Year 2003-2004.
13. Title – Some studies of HgClBr. Year 2003-2004.
14. Title – Study of the effect of the dipole moment of some polar compounds on the solid state reaction between CuI and $HgCl_2$. Year 2003-2004.
15. Title – Identification of the best calculation of cohesive energy for fluorides of Calcium, Strontium and Barium and first Pressure derivative of Bulk Modulus for fluorides of Calcium, Strontium and Barium along with nitrates of Strontium and lead. Year 2004-2005.
16. Title – Identification of the best calculation of the Cohesive Energy of Alkali Halides using various Potential Functions. Year 2004-2005.
17. Title – Identification of the best calculation of the Cohesive Energy of Oxides, Sulphides, Selenides and tellurides of some elements using various Potential Functions. Year 2005-2006.

18. Title – A Brief Review of the theoretical studies of alkali halides. Year 2005-2006.

19. Title – Study of magnetic properties of Nanoparticles and their applications. Year 2005-2006.

20. Title – A comparative study of the calculation of the first equilibrium pressure derivative of the Bulk Modulus K'0 of the alkali halides using various theories Year 2006-2007.

21. Title -A calculation of the First Equilibrium pressure derivative of the Bulk Modulus K'_0 of some oxides using the Born Mayer Theory. Year 2006-2007.

22. Title – Some studies of the mixed halides of Cadmium. Year 2007-2008.

23. Title – Some studies of the Binary and mixed halides of Zinc. Year 2007-2008.

24. Title – Solid-solid reactions Year 2007-2008.

25. Title – Study of the effect of the dipole moment of the reactants and the solvent impurity on the rate of some solid – solid reactions. Year 2008-2009.

26. Title – Study of the Ionicity of Group II B Dihalides in Solution by measuring the molecular weight. Year 2008-2009.

27. Title – Study of some fats, oils and their components using (KI + $HgCl_2$) reaction in a capillary. Year 2009-2010.

28. Title – Study of the ionic nature of Group II B Dihalides using molecular weight studies in solution. Year 2009-2010.

29. Title – Study of Dalda, Saffola oil and their components using potassium iodide and mercuric chloride reaction in a capillary. Year 2010-2011.

30. Title – Study of the effect of the Dipole moment of the solid ionic and solvent impurities on the rate of the solid state reaction between cadmium chloride and 8-Hydroxyquinoline. Year 2010-2011.

31. Title - Preparation of Silver nanoparticles by biosynthetic method using *Marigold* (candela ophicinalis). Year 2011-2012

32. Title – Effect of Surfactant on Morphology of Silver Nanoparticles. Year 2011-2012.

33. Title – Synthesis of Ag- Nanoparticles from *Mimusops elengi* leaf extract and effect of surfactant on the morphology. Year 2012-2013

34. Title –Measurment of unknown dipole moments of organic solvents and the effect of solid organic impurities on the solid-solid reaction CuI-$HgCl_2$. Year 2012-2013

35. Title- Synthesis of Ag-nanoparticles from *Plumeria obtusa* leaf extract and effect of Surfactant on the morphology. Year 2013-2014

36. Title- Capillary studies for measurement of unknown dipole moment of organic andsize of a nanoparticles prepared from different leaf extract. Year 2013-2014

37. Title-Synthesis of Ag-nanoparticles from *Salvia Splenden* leaf extract and effect of surfactant on the morphology. Year 2014-2015

38. Title-Green chemistry: Preparation and characterization of silver nanoparticles using *Acacia Leucophloea* in the presence / absence of CTAB. Year 2014-2015

39. Title-Lateral diffusion studies for measurement of dipole moments of Ethyl methacrylate and 2- Ethyl-1-butanol and size of Ag -nanoparticles prepared from different leaf extracts. Year 2014-2015.

40. Title- Capillary studies for measurement of unknown dipole moment of organic solvents by two approaches. Year 2015-2016.

41. Title- Green synthesis of copper oxide nanoparticles using Azadirachta indica (Neem) leaf extract and its applications in the degradation of Chrysoidine-y dye. Year 2015-2016

Conferences Attended:

1. Attended the Workshop on "High Resolution X-Ray and Auger Electron Spectroscopy, with high energy heavy ion beams held on 26th Feb. 1996 organized by the Nuclear Science Center, New Delhi.
2. Attended the Workshop on 'Ion beams in material research' held between Feb. 17-20, 1997 Pune. It was organized by the Inter University Consortium for DAE facilities.
3. Attended the International Workshop on Chemical Evolution and Origin of Life March 5-7, 2010 held at the Indian Institute of Technology, Roorkee.

Conferences attended with Poster Presentation

1. Made Poster presentation of two papers at the 89th Indian Science Congress held at Lucknow between Jan. 3-7 (2002), India.

2. Made Poster presentation of two papers at the 4th Conference on Recent Trends in Instrumental Methods of Analysis held between Feb. 18-20, 2010 at the Indian Institute of Technology, Roorkee, India.

3. Made Poster Presentation of two papers at the "7th National Symposium and Conference on Solid State Chemistry and Allied Areas" held between Nov. 24-26, 2011 at the Department of Chemistry, J.M.I. New Delhi- (In Association with – Indian Association of Solid State Chemists and Allied Scientists) (ISCAS), India.

4. Made Poster Presentation of one paper at the seminar on the "Recent Advances in Chemistry 2012" on March 12, 2012 held at Department of Chemistry, J.M.I. New Delhi-110025, India.

5. Made Poster Presentation of one paper at the seminar on the "Recent Advances in Chemistry 2012" on March 24, 2014 held at Department of Chemistry, J.M.I. New Delhi-110025, India.

6. Made Poster Presentation of one papers at the "National Conference on Interdisciplinary Approaches in Chemical Sciences" held at December 16, 2015 at the Center for Interdisciplinary Research in Basic Sciences, J.M.I., New Delhi-110025, India.

7. Made Poster Presentation of one papers at the "60th DAE-Solid State Physics Symposium" (Diamond Jubilee Year) Sponsored by "BRNS", December 21-25, (2015), Amity University UP, Noida, India

8. Made Poster Presentation of one paper at the "International Conference on Recent Advances in Chemical Sciences", held at March 29-30, 2016, at the Department of Chemistry, Aligarh Muslim University, Aligarh, UP, India.

Ph.D's guided – Two

S.No.	Name of scholar	Title	Year
1.	Dr. Jamshed Ali	Some Studies of the Mixed Halides of Mercury In Solution and In Solid State	2010
2.	Dr. Qamer Faisal	Study of Some Solid - Solid Reaction with Dry and Moistened Reactants	2011

Papers Published

1. Precise and Accurate Estimation of Crystallographic Parameters by Maximum Likelihood and Minimax methods by G.B. Mitra, (Mrs.) Rabia Ahmad and Prabal Das Gupta, Indian Association for the Cultivation of Science, Calcutta. Published in structure and Statistics in Crystallography by A.J.C. Wilson, FRS Adamina Press (1985) p 151-181.

2. Solid State reaction between mercury chlorobromide and silver iodide by M.A. Beg and Rabia Saud. Indian Journal of Chemistry Vol. 25A, 1986 p. 373-375.

3. ASTM – HgClBr.

4. Variety of objective question formats illustrated with a critical discussion of examples from Chemistry by M.Z. Rahman and Rabia Ahmad. School Sciences Vol. XXXII Nos. 1, 2 & 3 p (11-14), p. (4-8) p (5-9) 1994.

5. A Dimensionless Relationship between Bulk Modulus, Molar Volume and Cohesive Energy for some Ionic Diatomic Solids. Rabia Ahmad and M.Z. Rahman Khan Oriental Journal of Chemistry, Vol. 22 (2), (2006) p. 321-326.

6. A Theoretical Calculation of the first equilibrium pressure derivative of the bulk modulus, K'_0 using the Born Mayer Theory.
   Rabia Ahmad and M.Z. Rahman Khan, Materials Science Research India, Vol. 3 (2a), (2006), p 261-262.

7. Densities of the alkali halides, the chalcogenides and some Cu -, Ag and Tl halides from the nearest neighbor distance.
   Rabia Ahmad and M.Z. Rahman Khan Materials Science Research India, Vol. 3 (2a), (2006) p 231-234.

8. A new formula for the ionic percentage of a chemical bond in the vapour phase.
   Rabia Ahmad and M.Z. Rahman Khan Oriented Journal of Chemistry, Vol. 23 (1), (2007) p. 369-370.

9. Brief Introduction to Statistical Thermodynamics.
   Part-I – Some Preliminary Remarks.
   M.Z. Rahman Khan and Rabia Ahmad. Bulletin of Indian Association of Physics Teachers Vol. 24, No. 9, Sept. 2007, p. 272-274.

Part-II – The Statistical Distributions.
M.Z. Rahman Khan and Rabia Ahmad Vol. 24, No. 10, Oct. 2007, p. 310-311.

Part-III – The Boltzmann Distributions and the Partition Function.
M.Z. Rahman Khan and Rabia Ahmad Vol. 24, No. 11, Nov. 2007, p. 342-344.

Part-IV – Classical and Quantum Statistics
M.Z. Rahman Khan and Rabia Ahmad, Vol. 24, No. 12, Dec. 2007, p. 368- 369.

10. Measurement of the grain size of HgClBr - nano form of HgClBr, Rabia Ahmad and Jamshed Ali. Oriental Journal of Chemistry Vol. 26 (3), (2010), p. 1127-1130.

11. Determination of the Chemical activation energy, the rate constant and order of inorganic solid reactions from capillary studies. Rabia Ahmad and Qamer Faisal Oriental Journal of Chemistry Vol. 26 (2), (2010), p. 481-496.

12. A semi – empirical approach for the cohesive energy of the alkali halides. Rabia Ahmad, Qamer Faisal and M.Z. Rahman Khan, Oriental Journal of Chemistry, Vol. 27 (2), (2011), p. 633-638.

13. An experimental study of the ionicity of HgClBr. Rabia Ahmad, Qamer Faisal and Jamshed Ali. Oriental Journal of Chemistry, Vol. 27 (2), (2011), p. 769-770.

14. A preliminary discussion of the polynomial fits to the thermal curves of solid-solid reactions carried out in bulk. Rabia Ahmad and Qamer Faisal Material Science Research India, Vol. 8 (1), (2011), p. 107-111.

15. Formation of new products in a solid – solid reaction in the presence of organic solvent impurity. Rabia Ahmad and Qamer Faisal. Current World Environment, Vol. 6 (1), (2010), p. 115-124.

16. Preliminary results of the electrical conductivity and magnetic nature of the highly pressed doubled halides of mercury and their equimolar mixtures. Rabia Ahmad, Jamshed Ali and Qamer Faisal. Current World Environment, Vol. 6 (1), 2011, p. 135-139.

17. Zaheer Khan, Ommer Bashir, Javed Ijaz Hussain, Sunil Kumar, Rabia Ahmad, Effects of ionic surfactants on the morphology of silver nanoparticles using

Paan (Piper betel) leaf petiole extract, Colloids and Surfaces B: Biointerfaces, 98, (2012), p.85-90

18. Qamer Faisal, Rabia Ahmad and Zaheer Khan, Bio-conjugated silver nano-materials and shape-directing role of cetyltrimethylammonium bromide, Journal of Advances in Chemistry, Vol. 2(1), (2013), p. 57-67.

19. Rabia Ahmad, Jamshed Ali and Qamer Faisal, An experimental study of formation of the mercury mixed halides HgClBr and HgBrI and of their purity, Oriental Journal of Chemistry, Vol. 31 (2), (2015), p. 653-659.

20. Rabia Ahmad, Sajjad Hussain Parrey and Qamer Faisal, Role of cetyltrimethylammonium bromide in the green synthesis of silver nanoparticles using *Mimusops elangi*, Linn. (Maulsari) leaf extract, Advances in Nanoparticles, Vol. 5 (1), (2016), p.44-52.

Article in Magazine:

1. Equivalence of the distributions of Statistical Thermodynamics.
M.Z. R. Khan and Rabia Ahmad
Physics Bulletin, Aligarh Muslim University, p. 11-13, Feb. 2009.