

BIO-DATA

NAME	Dr. Fozia Zia Haque
PRESENT POST	Lecturer, Coordinator M.Tech. Nanotechnology
AFFILIATION & ADDRESS	Department of Physics, Maulan Azad National Institute of Technology, Bhopal, M.P. India Phone (mobile): +919300687943, +919424401381 E-mail : foziazia@rediffmail.com
QUALIFICATION	Ph.D. (Solid State Physics/ Materials Science)- 2007 NET (CSIR-UGC) M.Sc.(Physics with Special Electronics)
DATE OF BIRTH	02/09/1976
TITLE OF THESIS	Studies on alkali ion active solid superionic conductors from The Department of Physics, D.D.U.Gorakhpur University, Gorakhpur- India
RESEARCH EXPERIENCE	8 years <ul style="list-style-type: none">• Research on Solid Superionic Conductors for the award of Ph.D. under the guidance of Prof. H. B. Lal in the Department of Physics, D.D.U.Gorakhpur University Gorakhpur since 2000• Worked on Ferrites at above same place.• Worked as a JRF in a DRDO project entitled "Studies on the Mechanism of New Dye Laser Materials and their Organic Hosts" in the Department of Physics, JMI, New Delhi, India during 2004-05• Currently involved in the researches on Nanomaterials such as ZnO Nanocomposite and Nanorods, BioPolymer Membrane for Fuel Cell, , and Photoconducting Polymer Nanocomposites in the Department of Physics, M.A.N.I.T., Bhopal-India
TEACHING EXPERIENCE	6 $\frac{1}{2}$ years (3 yrs at DDU Gkp Univ.+ 3 $\frac{1}{2}$ yrs at M.A.N.I.T., Bhopal)
BOOK PUBLICATION	01 Essentials of Quantum Mechanics , Asian Pub. New Delhi 2008
RESEARCH PUBLICATION	43 Total (11+21+11=43)
Published	11
Presented in Conferences	21
Communicated Papers	11
CONFERENCES/ WORKSHOPS/ SHORT TERM COURSES	29

Publications

Published Book:

1. **Essentials of Quantum Mechanics**, Asian Books Pub., New Delhi- India, Jan- 2008

Published Research Papers:

1. SOLID STATE INONICS (GERMANY)
Ionic and Electronic conductivity of some alkali vanadates
K. M. Mishra, A.K.Lal.and F. Z. Haque, So.St.Ionics ,167(2003)
2. SOLID STATE PHYSICS (INDIA)
Phase Transition Study of Some Superionic Conductors
K. M. Mishra, F. Z. Haque and H. B. Lal ,So.St.Physics ,45 pp135(2002)
3. SOLID STATE PHYSICS (INDIA)
Electronic Conductivity in Some Alkali Salts
K.M. Mishra, F.Z. Haque and H.B.Lal, 45 pp87(2002)
4. SOLID STATE PHYSICS (INDIA)
On The Magnetic Susceptibility of Manganese Ferrites
A.K. Lal , F.Z. Haque and K.M.Mishra 47 pp937(2004)
5. SOLID STATE PHYSICS (INDIA)
Ionic and Electronic Conductivity in Some Alkali Salts
F.Z. Haque , K.M. Mishra and H.B.Lal, 47 pp740 (2004)
6. PROCEEDINGS 13TH INTERNATIONAL WORKSHOP ON THE PHYSICS OF SEMICONDUCTOR DEVICES, New Delhi (INDIA)(2005)
Electrical and morphological characterization of sulfamic acid doped polyaniline-PVC films
Vazid Ali, Fozia Z. Haque, Pushplata Tripathi, Vilakshan Singh, Z.H. Zaidi and Hussain
7. PROCEEDING OF ICRTNT 2006
Preparation of organic Liquid Magnet from nano-sized Siderophores extracted from Natural Alluvial Soil Solutions
F. Z. Haque and Ravish Kumar, Proceeding of International Conference On Recent Trends In Nanoscience And Technology ICRTNT, pp148-151,(2006)
8. JOURNAL OF APPLIED POLYMER SCIENCE (USA) (2007)
Preparation and characterization of polyether based polyurethane dolomite composite
Vazid Ali, Neelkamal, Fozia Z. Haque, M. Zulfequar and M. Husain V.103-4, pp 2337-2342, (2007)
8. MATERIAL SCIENCE RESEARCH (INDIA) 2007

**Polymer Nanocomposites Preparation, Characterization and Application:
An Overview**

Fozia Z Haque, Pushplata Tripathi, M Husain and K. S. Pandey, V4-1,39-60, 2007

9. **High Ionic Conductivity and Superionic Phase In a Li-System**
Fozia Z. Haque, K.M. Mishra and H.B. Lal , Proceeding of National Conference On Recent Advances in Engg Physics, RAEP-07, pp 11-16, 2007
10. **Nonosized Biopolymer Chitosan: Synthesis and Characterization**
Fozia Z Haque, Lubna Hashmi , Bhakti V Raigaonkar, R N Dubey and M S Qureshi, Proceeding of National Conference On Recent Advances in Engg Physics, RAEP-07, pp-620, 2007
11. **JOURNAL OF SOL GEL SCIENCE & TECHNOLOGY (USA) 2006,
Synthesis and Spectroscopic Characterization of Nile blue Doped Silica Gel Rods Formation (Accepted)**
Vazid Ali, Fozia Z.Haque, B.S. Patel, Z.H. Zaidi, M. Zulfequar and M. Husain

Papers presented in Conferences:-

1. 70th Annual Session of National Academy of Sciences, 2000.
Electrical Transport in Heavy Rare earth Orthochromite
M. A. Khan, F. Z. Haque and H. B. Lal
2. 70th Annual Session of National Academy of Sciences, 2000.
Electrical Transport Studies on Rare earth Titanate
V. P. Srivastava, F. Z. Haque and H.B.Lal
3. 71st Annual Session of National Academy of Sciences, 2001.
Superionic Phase in Alkali Ion Tungstate of Type A_2WO_4 , Where A Stands for Li , Na & K
F. Z. Haque, K. M. Mishra and H.B.Lal Presented in 71th Annual Session of National Academy of Sciences, 2001
4. National Academy of Sciences, 2001.
Electrical Transport Study of Potassium Titanate
H.B.Lal, K. M. Mishra and F. Z. Haque Presented in 71th Annual Session of
5. VI conference of IAPS-2004
Ionic and Electronic Conductivity in some Alkali Salts
F. Z. Haque, K. M. Mishra and H. B. Lal, presented in for YOUNG SCIENTIST AWARD
6. International Workshop On Sol-Gel Science And Technology at **University of California, Los Angeles** , Aug-2005
Preparation and Characterization of Crack Free Silica Gel Rods
M. Husain, Vazid Ali, Fozia Z.Haque, B.S. Patel and Z.H. Zaidi
7. INTERNATIONAL CONGRESS ON CERAMICS (Toronto)-2005
Synthesis and Spectroscopic Characterization of Nile blue Doped Silica Gel

- Vazid Ali, Fozia Z.Haque, B.S. Patel, Z.H. Zaidi, M. Zulfequar and M. Husain*
8. International Conference on Recent Trends In Nanoscience And Technology - (Kolkata-India) 2006
One-step Low Temperature Combustion Synthesis and Studies of Alkaline Earth Based Nanophosphors
F.Z. Haque, Shreyas Pitale and R.N. Dubey
 9. 12th Annual conference of Gwalior Academy of Mathematical Sciences-2007,(Bhopal-India)
Mathematical programming for charging of blast furnace
Ravish Kumar and F Z Haque
 10. Tech Fest of UIT Nav-Aayam-2007,
Studies Design of a high impact strength, corrosion resistant and high temperature and pressure resistant coatings of zirconium metallic glass for lining in furnaces
Fozia Z Haque and Ravish Kumar, Presented at Bhopal-India, (won First Prize)
 11. Tech Fest of BIST, Anatahpravah- ,(Bhopal-India)-2007
Studies on the Micro porosity and Fractal Dimensions of the Activated Carbons Prepared From Papaya Wood by Physical Process,
F Z Haque and Ravish Kumar (won First Prize)
 12. 10th Conference of International Academy of Physical Sciences CONIAPS-X, (G.G.U. Bilaspur -India) - Jan-2008
Optimization of parameters for the synthesis of ZnO/SiO₂ Nanocomposites by sol-gel technique
Fozia Z Haque, Lokesh Shastri, M Husain and K. S. Pandey
 13. National Seminar on Recent Advances in Chemical Engineering Operation and Process in Chemical and Allied Industries (GGU Bilaspur-India) Feb-2008
Possible Hazards of Nanoparticles to Mankind and Environment [INVITED TALK]
F. Z. Haque and K. S. Pandey
 14. Proceedings of Women in Photonics (WiP) School on Photonic Metamaterials, Paris (France), April 2008,
Study of parameters affecting the synthesis of ZnO/SiO₂ Nanorods by sol-gel technique,
F. Z. Haque Lokesh Shastri and K. S. Pandey
 15. International Conference On Nanoscience And Technology (Chennai - India)-Feb-2008.,
Study of parameters affecting the synthesis of ZnO/SiO₂ Nanocomposites by sol-gel technique
Fozia Z Haque, Lokesh Shastri, M Husain and K. S. Pandey
 16. International Conference on Nanotechnology: Opportunity and Challenges at King Abdulaziz University- Jeddah (SA), June, 2008
Study of parameters affecting the growth of ZnO Nanorods by sol-gel technique
Fozia Z Haque, Lokesh Shastri, M Husain and K. S. Pandey

17. International Conference on Advances in Nanotechnology ICANAT, Raipur November- 2008
Fozia Z Haque, Lokesh Shastri, M Husain and K. S. Pandey
18. Conference on Nanomaterials and Nanotechnology at IES Engineering College, Bhopal, November 2008
Synthesis Of Chitosan Based Polymer Electrolyte Membrane (PEM)
F.Z Haque*, Lokesh Shastri, Vinita Pandey, Shweta Rajawat, Devendra Mehra
(won First Prize)
19. 2ND BANGALORE NANO CONFERENCE 2008
Synthesis and Characterization of ZnO-SiO₂ Binary System by Modified Solgel Technique
Lokesh Shastri, Fozia Z Haque and K. S. Pandey
20. SHORT TERM COURSE ON RECENT TRENDS IN MATERIALS SCIENCE AT NIT RAIPUR DEC 2008,
Hazards of Nanoparticles [INVITED TALK]
F. Z. Haque and K. S. Pandey
21. 1ST INTERNATIONAL JOINT CONFERENCE ON MATERIALS SCIENCE, NANOTECHNOLOGY AND BIOTECHNOLOGY - FUTURE CHALLENGES MNB 09 -, CAIRO, EGYPT. JANUARY, 2009
Fozia Z Haque, Lokesh Shastri, M Husain and K. S. Pandey

Communicated Papers: -

1. TAIBAH INTERNATIONAL CHEMICAL CONFERENCE (TICC-2009) AT MADINA, SA , 2009
Synthesis And Characterization Of Zno Nanorods Using Modified Sol-Gel Technique
Fozia Z Haque, Lokesh Shastri, A. Alghamdi, M. Husain And K.S. Pandey
2. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Influence of Graphite Additon and Porosity on The Wear Resistance of Fe-15%Cu-2%Mn-0.6%Cr Steel (ACCEPTED)**
SreeKanth D., Hemlata Nayak, Fozia Z Haque and K.S. Pandey
3. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Relationship Between Densification Process and Calculated Parameters During Hot Forging of Sintered Fe-0.55c-X Mn Steels Preforms (ACCEPTED)**
Hemlata Nayak, Fozia Z Haque And K.S. Pandey
4. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Hot Forging of Sintered Low Alloy Nickel P/M Steel**
R. Bindu, Hemlata Nayak, Fozia Z Haque And Dr. K.S. Pandey
5. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Hot Extrusion of Sintered Aluminium and Aluminium Based Composities, (ACCEPTED)**
M. Anuradha, Hemlata Nayak, Fozia Z Haque and K.S. Pandey

6. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Influence of Porosity And Ring Geometry on The Fracture Strengths of Plain Carbon P/M Steels**,
C. Shanthi, Hemlata Nayak, Fozia Z Haque and K.S. Pandey
7. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas, June-2009, **Effect of Iron Particle Size Ranges on The Consolidation" of Iron - 0.6% Graphite Mixes, (ACCEPTED)**
G. Anitha, Hemlata Nayak, Fozia Z Haque and K.S. Pandey
8. INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS PowderMet LasVegas , June-2009, **Influence of Molybdenum Addition and Heat Treatment on The Mechanical Properties of Sintered Hot Forged Square Cross Section Bars of Eutectoid Steel**,
K. Subramanian, Hemlata Nayak, Fozia Z Haque and K.S. Pandey
9. JOURNAL OF SOL GEL SCIENCE & TECHNOLOGY (USA) (2008), **Synthesis And Spectroscopic Characterization of Kiton Red- 620 Dye Doped Silica Gel Rods**
Fozia Z.Haque, Vazid Ali, Z.H. Zaidi and M. Husain (Communicated)
10. INTERNATIONAL JOURNAL *MACROMOLECULES*
Chitosan- a soft material for biofabrication of assembly of nanoscale components *Fozia Z Haque, Pushplata Tripathi, M Husain and K.S. Pandey (2007)*
11. XIV INTERNATIONAL MATERIALS RESEARCH CONGRESS (México) **Symposium 4: Solar Cells & Solar Energy Materials** at México University, Aug-2007
High Ionic Conductivity and Superionic Phase Found in Some New Alkali Vanadates
F.Z. Haque, K.M. Mishra , P.J. Sabastien, Xavier Mathew, M. Husain and H.B. Lal

Conferences/Workshops/Short Term Courses Attended

1. **20th ASI Meeting & National Symposium on Multiwavelength Astronomy**, at Gorakhpur, February- 2000.
2. **70th Annual Session of National Academy of Sciences**, Allahabad University, November- 2000
3. **Nuclear Science Center Acquaintance Program**, Allahabad University, 2001.
4. **DAE, Solid State Physics Symposium** held in December at Punjab University, Chandigarh, December-2002
5. **National Symposium on Materials and Application NASMA**, Faizabad, March-2003
6. **National Conference of Indian Association of Physical Sciences**, DDU Gorakhpur, March-2004
7. **National Conference on Materials and its Application NCMA**, Kurukshetra, 2004
8. **DAE, Solid State Physics Symposium** held in December at G.N.D.University, Amritsar, December-2004.
9. **National Symposium on Advances in Material Science**, Gorakhpur, 17-19 March 2005
10. **Workshop on User Awareness Programme on Material Characterization Techniques**, National Physical Lab. New Delhi, 10-14 Jan-2005
11. **Workshop on Sol Gel Derived Thin Films and Devices**, Delhi University, South Campus, New Delhi, 17-18 June-2005
12. **Faculty Improvement Program** at MANIT, Bhopal, August-2005
13. **Short term course on Materials Property and Characterization**, NIT Durgapur (WB), 24-28 April-2006
14. **SID's Asian Symposium on International Display**, by IIT Kanpur at India Habitate Center, New Delhi, 8-12th October 2006.
15. **International Conference On Recent Trends In Nanoscience And Technology ICRTNT**, University of Jadavpur, Kolkata December-2006
16. **Conference Condensed Matter and Materials Physics, CMMP**, University of Jaipur, Jaipur 1-3 February-2007
17. **International Workshop on Nanotechnology-Current Status and Chalanges**, IIT Delhi, 17-18, February -2007
18. **National Conference On Recent Advances in Engg Physics, RAEP**, LNCT, Bhopal, 15-16, April -2007
19. **12th Annual Conference Of Gwalior Academy of Mathematical Sciences**, MANIT, Bhopal, 6-8 April-2007

20. **National Workshop on Cheminformatics**, MANIT, Bhopal, 28 May to 1 June-2007
21. **Short term course on Ferroic materials**, IIT Kharagpur, 2-14, November-2007
22. **National Seminar on Nano materials and Devices**, JMI, New Delhi, 29 January, 2008.
23. **International Conference On Nanoscience And Technology (ICONSAT)** at Chennai -India, 26-29 February- 2008
24. **National Workshop on Bioinformatics**, MANIT, Bhopal, 10-14 March-2008
25. **National Workshop on Cheminformatics**, MANIT, Bhopal, 15-19 March-2008
26. **International Conference on Nanotechnology: Opportunity and challenges**, at King Abdul-Aziz University- Jeddah (SA), 15-19 June -2008
27. **Short Term Training program on Recent Application on Thermal Engineering**, MANIT, Bhopal, 11-22 August 2008
28. **Staff Development program on Sustainable Strategies for Green Architecture**, MANIT, Bhopal, 1-12 September 2008
29. **International Conference on Advances in Nanotechnology ICANAT**, Raipur CG, 6-8 November- 2008

RESEARCH EXPERIENCE

1. Research on **Solid Superionic Conductors** for the award of Ph.D. degree under the guidance of Prof. H. B. Lal in the Department of Physics, D.D.U.Gorakhpur University Gorakhpur since 2000, and thesis entitled **Studies on alkali ion conducting solid superionic conductors** was submitted in December 2006. The Ph. D. degree on this thesis is awarded in September 2007.

Main objectives of the thesis were

1. To search and synthesis of new alkali ion salts that can be good ionic conductor and give Superionic conductivity ($\approx 10^2 \Omega^{-1} \text{m}^{-1}$) at certain temperature range so that it can be used as solid electrolytes in battery.
2. To investigate feasibly and find whether these salts can withstand at higher temperature for obtaining a stable cell, which can eventually be fabricated into a battery.
3. To understand the transport mechanisms of carrier entity in some Alkali Ion Active solid Superionic conductors and experimentally search their temperature range of such high ionic phase and explain by various models.

Other objectives were to,

- Study samples preparation by solid state reaction at high temperature in furnaces.
- Experimentally measure and verify the ionic conductivity and electronic conductivity of samples as a function of time and temperature.
- Experimentally search the normal ionic and Superionic phase of the samples and find activation energy in each phase of the materials. And confirm the phase transition temperature.
- Predict the model or extending model to explain the transport mechanism of ions in such ionic materials.

Methodology/Instruments Used:

- Material prepared by high temperature solid state reaction techniques.
- Characterization of samples by Xray Defractometer (XRD)
- Study of ac and dc conductivity as a function of various parameters like time and temperature, thermoelectric power as a function of temperature, Dielectric constant a function of temperature and magnetic susceptibility a function of temperature.

2. Worked as a JRF in a DRDO sponsored major research project entitled "Studies of Mechanism of New Dye Laser Materials and their Organic Hosts" in the Department of Physics, JMI, New Delhi from August-04 to July-05. Also associated with the work on synthesis and characterization of Conducting Polymers.

Main objectives of the project were

1. To understand the mechanisms and experimentally search for dyes which have a potential to lase.
2. To investigate organic sol-gel hosts for obtaining a uniform and stable medium, this can eventually be fabricated into a laser rod.

Other objectives were,

- Design / fabrication of a completely new universal laser testing bench on the basis of our experience on diffusive reflective pump cavities wherein any laser rod having dimensions of from 2 to 10mm in diameter and 10-40mm length could be excited by flash lamp.
- Design / fabrication of a new type of variable Blumlein capacitor yielding laser pulses in one to two nanosecond range of variable peak power at 337nm for pumping laser dyes.

Methodology/Instruments Used:

- Material prepared by SolGel and other wet chemical Techniques.
- Characterization of samples by UV-Vis Spectrometer, Spectrofluorometer, Fourier Transform Infrared Spectrometer (FTIR), Differential Scanning Calorimeter (DSC), Scanning Electron Microscope (SEM)
- Study of lasing action of materials by putting it in specially designed LASER cavity.

3. Currently involved in the researches on **Nanomaterials** such as *ZnO Nanocomposite and Nanorods*, *BioPolymer Membrane for Fuel Cell*, and *Photoconducting Polymer Nanocomposites* in the Department of Physics, M.A.N.I.T., Bhopal-India

TEACHING EXPERIENCE

1. Department of Physics, D.D.U. Gorakhpur University, Gorakhpur for the session 2001-04
Teaching B.Sc. Physics & M.Sc. Electronics and instructing experiment in both UG and PG Labs, assisting in M.Sc. projects, involved in University Annual Examination and Entrance Tests
2. Gangotri Devi Women's (PG) College, Gorakhpur, for the session 2001-04,
Teaching B.Sc. Physics and instructing experiments in UG Labs, assisting in projects
3. Department of Physics, JMI, New Delhi for the session 2004-05
Teaching B.Sc. Physics and instructing experiments in UG and PG Labs, assisting in projects
4. Department of Physics, Maulan Azad National Institute of Technology (Deemed University), Bhopal, M.P. since July-2005 till day.
Teaching B.Tech. Engineering Physics & M.Tech. Nanotechnology, instructing experiment in both UG and PG Labs, Guiding & assisting in M.Tech. projects, actively involved in Departments Annual Examination and Institute Entrance Tests, Coordinator M.Tech. Nanotechnology.

ADMINISTRATIVE/ ACADEMIC RESPONSIBILITIES at M.A.N.I.T. Bhopal

1. **Coordinator** of M.Tech. Nanotechnology course.
2. **Hostel Warden** of Girls` Hostel
3. **Member** of Women Cell of MANIT, Bhopal
4. **Member** of BOS of Physics Departmental
5. **Member** of Institute's Instruments Purchase Committee of MANIT, Bhopal
6. **Convener** of Departmental Instruments purchase committee.
7. **Departmental coordinator** of practical exam of B.Tech I & II sem (Dec 2005 to June 2008)
8. **Departmental coordinator** of Ph.D. course work exam
9. **Departmental coordinator** of Institute Entrance Test for M.Tech. (Nanotechnology)
10. **Incharge** B.Tech. UG Physics Lab
11. **Incharge** M.Tech. Nanotechnology Lab
12. **Incharge** Xray Lab at central research facility.
13. **Syllabus Design and Modification** for M.Tech. (Nanotechnology) course started from July 2006
14. **Guiding M.tech Projects:** one M.Tech. Materials Science (June 2008) and three M.Tech. Nanotechnology students presently.

REFEREES

1. **Prof. K. S. Pndey**
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Bhopal M.P. -India
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2. **Prof. K. N. Tripathi**
Vice Chncellor
Agra University
Agra U.P. -India
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3. **Prof. M. Husain**
Deaprtment of Physics,
Jmaia Millia Islamia (Central University)
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