

# Curriculum Vitae

**Dr. Zeba**



- I am hardworking, highly devoted and enthusiastic to take up all my duties.
- I use my skills to provide students with quality higher education and research.

<b>Name &amp; Address</b>	<b>Zeba</b> <b>Assistant Professor</b> <b>Department of Chemistry</b> <b>Jamia Millia Islamia (A Central University)</b> <b>New Delhi-110025, India</b>
<b>Research Area</b>	<b>Solid-State Chemistry, Superconductivity and Nanomaterials</b>
<b>Email(s)</b>	<a href="mailto:zeba@jmi.ac.in">zeba@jmi.ac.in</a> or <a href="mailto:zebahaque08@gmail.com">zebahaque08@gmail.com</a>
<b>Contact No.</b>	<b>+91-8010132209</b>
<b>Date of Joining</b>	<b>20<sup>th</sup> January 2023</b>

## Work Experience:

Assistant Professor on a Regular Basis from 20.01.2023 (A/N) to date  
Teaching experience of over 4.5 years at JMI (Contractual/ Guest Basis)  
From 03.08.2017 to 31.05.2020 with session breaks and  
From 22.10.2021 to 20.01.2023 (F/N) with session breaks

## Educational Qualifications:

### Ph.D.

IIT Delhi (October 2017)

### Thesis Title:

Investigation of New Superconducting Materials with BiS<sub>2</sub> Layers  
(Supervisor: Prof. Ashok K. Ganguli)  
CGPA-9 (Course Work in Ph.D.)

### M.Sc.:

Jamia Millia Islamia (2011)  
Physical Chemistry; Dissertation Title: Reverse Micellar Synthesis  
and Characterization of Ba<sub>1-x</sub>Pb<sub>x</sub>ZrO<sub>3</sub> (x = 0.05, 0.10, 0.15 and 0.20)

**BSc.:** Jamia Millia Islamia (Gold Medalist)  
Chemistry (Hons)

**Awards:**

- Awarded **JRF-NET** conducted by CSIR-UGC, December 2010.
- Qualified the Graduate Aptitude Test in Engineering (**GATE**), February 2011.
- Awarded **SRF** fellowship, January 2014.
- Selected for visiting students research program (**VSRP-2010**) (chemical science), **TIFR, Mumbai.**
- Selected in the extended merit list in JAM 2009.
- Secured university first topper position at B.Sc. (Hons) Chemistry (2006-2009), Jamia Millia Islamia (**Gold Medalist**).
- Secured university **third-topper position** at M.Sc. Chemistry (2009-2011), Jamia Millia Islamia.
- Obtained **Outstanding performance award** at Winter School, Dec 2013, JNCASR, Bangalore.
- **Best Oral & Poster award** at International Conference on Advanced Materials: Current Trends & Future Prospects May-June 2014 at Manali.

**Area Of Research**

- Inorganic/Materials Chemistry: Expertise in solid-state sealed reaction methodology employed for the synthesis of inter-metallic and superconducting polycrystalline samples. The preparation of these materials is carried out in an inert environment. Proficient in sealing quartz tubes under vacuum line.
- Experience in synthesizing nanoparticles using reverse micelle.
- Hands-on experience: X-ray diffractometer (powder), closed-cycle cryostat for resistivity measurement using the four-probe technique, high temperature programmable furnace.
- Computer Skills: Proficient in using Origin, Joint Committee on Powder Diffraction Standards (JCPDS), TOPAZ (for Rietveld refinement).

**List of Publications from Thesis:**

1. **Zeba Haque**, Gohil S Thakur, Rangasamy Parthasarathy, Birgit Gerke, Rainer Pöttgen, Amish G Joshi, G Kalai Selvan, S Arumugam, L C Gupta, and Ashok K Ganguli, "Unusual mixed valence

of Eu in two new materials  $\text{EuSrBi}_2\text{S}_4\text{F}_2$  and  $\text{Eu}_2\text{SrBi}_2\text{S}_4\text{F}_4$ : Mössbauer and XPS investigations”, *Inorg. Chem.* 56 (2017) 3182-3189. **(Impact Factor = 5.165)**

2. **Zeba Haque**, Gohil S Thakur, GKalai Selvan, Theresa Block, Oliver Janka, Rainer Pöttgen, Amish G Joshi, Rangasamy Parthasarathy, S Arumugam, L C Gupta and Ashok K Ganguli, “Valence state of Eu and superconductivity in Se–substituted  $\text{EuSr}_2\text{Bi}_2\text{S}_4\text{F}_4$  and  $\text{Eu}_2\text{SrBi}_2\text{S}_4\text{F}_4$ ”, *Inorg. Chem.* 57 (2018) 37-44. **(Impact Factor = 5.165)**
3. **Zeba Haque**, Gohil S Thakur, Somnath Ghara, L C Gupta, A Sundaresan and Ashok K Ganguli, “Structural and magnetic properties of a new and ordered quaternary alloy  $\text{MnNiCuSb}$  (SG:  $F\bar{4}3m$ )”, *J. Magn. Magn. Mater.* 397 (2016) 315–318. **(Impact Factor = 2.993)**
4. **Zeba Haque**, Gohil S Thakur, G Kalai Selvan, S Arumugam, L C Gupta and Ashok K Ganguli, “High pressure studies of superconductivity in  $\text{BiO}_{0.75}\text{F}_{0.25}\text{BiS}_2$ ”, *Bull. Mater. Sci.*, 40 (2017) 1121–1125. **(Impact Factor = 1.783)**
5. **Zeba Haque**, N Manivannan, G Kalai Selvan, L C Gupta, Ashok K Ganguli and S Arumugam, “Bulk superconductivity at  $T_c = 0.8$  K in  $\text{Eu}_2\text{SrBi}_2\text{S}_4\text{F}_4$ : AC-susceptibility and resistivity investigations”, *Materials Today: Proceedings*, 36, (2021) 743-746. **(Impact Score = 1.46)**
6. **Zeba Haque**, Soumen Ash, Günter Fuchs, L C Gupta and Ashok K Ganguli, “Pb–substitution in  $\text{Eu}_3\text{Bi}_2\text{S}_4\text{F}_4$ : A superconductor to insulator transition”. (*Manuscript under review in the Journal of Applied Composite Materials*)

#### **List of other publications:**

7. Gohil S Thakur, **Zeba Haque**, L C Gupta and Ashok K Ganguli, “CuFeAs: A New Member in the 111-Family of Iron-Pnictides”, *J. Phys. Soc. Jpn.* 83 (2014) 054706. **(Impact Factor = 1.579)**
8. Gohil S Thakur, **Zeba Haque**, Prakriti Neha, L C Gupta, Satyabrata Patnaik and Ashok K Ganguli, “Effect of O- and Mn-doping on superconductivity in  $\text{FeTe}_{0.5}\text{Se}_{0.5}$  superconductor”, *Z. Anorg. Allg. Chem.* 640 (6) (2014) 1159–1163. **(Impact Factor = 1.240)**
9. Gohil S Thakur, G Kalai Selvan, **Zeba Haque**, L C Gupta, Saroj L Samal, S Arumugam and Ashok K Ganguli, “Synthesis and properties of  $\text{SmO}_{0.5}\text{F}_{0.5}\text{BiS}_2$  and enhancement in  $T_c$  in  $\text{La}_{1-y}\text{Sm}_y\text{O}_{0.5}\text{F}_{0.5}\text{BiS}_2$ ”, *Inorg. Chem.* 54 (2015) 1076–1081. **(Impact Factor = 5.165)**
10. G Kalai Selvan, Gohil S Thakur, Krishnan Manikandan, YoshiaUwatoko, **Zeba Haque**, L C Gupta, Ashok K Ganguli and S Arumugam, “Upper Critical Field, Critical Current Density and Activation Energy of the New  $\text{La}_{1-x}\text{Sm}_x\text{O}_{0.5}\text{F}_{0.5}\text{BiS}_2$  ( $x = 0.2, 0.8$ ) Superconductors”, *J. Phys. Soc.*

*Jpn.* 84 (2015) 124701. **(Impact Factor = 1.579)**

11. Leena Aggarwal, Abhishek Gaurav, Gohil S Thakur, **Zeba Haque**, Ashok K Ganguli and Goutam Sheet, “Unconventional superconductivity at mesoscopic point contacts on the 3D Dirac semimetal  $\text{Cd}_3\text{As}_2$ ”, *Nature Materials* 15 (2016) 32-37. **(Impact Factor = 43.84)**
12. Gohil S Thakur, Rajveer Jha, **Zeba Haque**, V P S Awana, L C Gupta and Ashok K Ganguli, “Pressure enhanced superconductivity at 10 K in La doped  $\text{EuBiS}_2\text{F}$ ”, *Supercond. Sci. Technol.* 28 (2015) 115010. **(Impact Factor = 3.219)**
13. Anshu Sirohi, Chandan K Singh, Gohil S Thakur, Preetha Saha, Sirshendu Gayen, Abhishek Gaurav, Shubhra Jyotsna, **Zeba Haque**, L C Gupta, Mukul Kabir, Ashok K Ganguli and Goutam Sheet, “High spin polarization and origin of unique ferromagnetic ground state in  $\text{CuFeSb}$ ”, *Appl. Phys. Lett.* 108 (2016) 242411. **(Impact Factor = 3.791)**
14. G Kalai Selvan, Gohil S Thakur, K Manikandan, A Banerjee, **Zeba Haque**, L C Gupta, Ashok K Ganguli and S Arumugam, “Superconductivity in  $\text{La}_{1-x}\text{Sm}_x\text{O}_{0.5}\text{F}_{0.5}\text{BiS}_2$  ( $x = 0.2, 0.8$ ) under hydrostatic pressure”, *J. Phys. D: Appl. Phys.* 49 (2016) 275002. **(Impact Factor = 3.207)**
15. Gohil S Thakur, G Fuchs, K Nenkov, **Zeba Haque**, L C Gupta and Ashok K Ganguli, “Coexistence of superconductivity and itinerant ferromagnetism in  $\text{Sr}_{0.5}\text{Ce}_{0.5}\text{FBiS}_{2-x}\text{Se}_x$  ( $x = 0.5$  and  $1.0$ )”, *Scientific Rep.* 6:37527 | DOI: 10.1038/srep37527 (2016). **(Impact Factor = 4.379)**
16. Sirko Kamusella, Hans-Henning Klauss, Gohil S Thakur, **Zeba Haque**, L C Gupta, Ashok K Ganguli, Inga Kraft, Ulrich Burkhardt, Helge Rosner, Hubertus Luetkens, Jeffrey W Lynn and Yang Zhao, “Magnetism and site exchange in  $\text{CuFeAs}$  and  $\text{CuFeSb}$ : A microscopic and theoretical investigation”, *Phys. Rev. B* 95 (2017) 094415. **(Impact Factor = 4.036)**
17. Y Zhao, J W Lynn, Gohil S Thakur, **Zeba Haque**, L C Gupta and Ashok K Ganguli, “Magnetic structures of intermetallic rare earth compounds  $\text{RCuAs}_2$  ( $R = \text{Pr}, \text{Nd}, \text{Tb}, \text{Dy}, \text{Ho}$  and  $\text{Yb}$ )”, *J. Phys. Chem. Solids* 111 (2017) 1-7. **(Impact Factor = 3.995)**
18. M Kannan, G Kalai Selvan, **Zeba Haque**, Gohil S Thakur, B Wang, K Ishigaki, Y Uwatoko, L C Gupta, Ashok K Ganguli and S Arumugam, “Superconductivity induced by external pressure in  $\text{Eu}_{3-x}\text{Sr}_x\text{Bi}_2\text{S}_4\text{F}_4$  ( $x = 1, 2$ ) compounds”, *Super. Conduct. Sci Technol.* 30 (2017) 115011. **(Impact Factor = 3.219)**
19. N Subbulakshmi, G Kalai Selvan, **Zeba Haque**, L C Gupta, Ashok K Ganguli and S Arumugam, “Pressure-enhanced superconductivity in  $\text{EuSr}_2\text{Bi}_2\text{S}_{4-x}\text{Se}_x\text{F}_4$  and  $\text{Eu}_2\text{SrBi}_2\text{S}_{4-x}\text{SexF}_4$  ( $x = 1.5, 2$ )”,

*Physica Status Solidi B*, 256 (2019) 1800603. (**Impact Factor = 1.710**)

20. N. Subbulakshmi, G. Kalai Selvan, K. Manikandan, M. Kannan, **Zeba Haque**, L. C. Gupta, A. K. Ganguli and S. Arumugam, “Effect of Hydrostatic Pressure on  $\text{Eu}_{3-x}\text{Sr}_x\text{Bi}_2\text{S}_{4-y}\text{Se}_y\text{F}_4$  ( $x = 1$  and  $2$  and  $y = 1.5$  and  $2$ ) Superconductors”, *Journal of Superconductivity and Novel Magnetism*, 32 (2019) 2359-2367. (**Impact Factor = 1.55**)
21. Gohil S Thakur, Rajveer Jha, **Zeba Haque**, L C Gupta, V P S Awana and A K Ganguli, “Y-substitution effect on Superconducting properties of  $\text{Ce}_{1-x}\text{Y}_x\text{O}_{0.5}\text{F}_{0.5}\text{BiS}_2$ ”, (*to be communicated*).

#### **Book Chapters:**

1. Paramjit Singh, Shiva Sharma, **Zeba Haque**, Fahmina Zafar, Nahid Nishat, “Two-Dimensional Nanomaterials Based Polymer Nanocomposites for Catalytic and Photocatalytic Applications”, under review at *Scrivener Publishing LLC*.

#### **Conference Proceedings:**

1. Yang Zhao, JW Lynn, Gohil S Thakur, **Zeba Haque**, LC Gupta, AK Ganguli, “Incommensurate Magnetic Structure of Rare Earth Compounds  $\text{RCuAs}_2$ ”, *APS March Meeting*, 2014.
2. Yang Zhao, JW Lynn, Gohil S Thakur, **Zeba Haque**, LC Gupta, AK Ganguli, “Neutron Study of the Magnetic Structures and Phase Transitions in  $\text{RCuAs}_2$  ( $\text{R}=\text{Pr}$ ,  $\text{Nd}$ ,  $\text{Tb}$ ,  $\text{Dy}$ ,  $\text{Ho}$ ,  $\text{Yb}$ )”, *APS March Meeting*, 2015.
3. Goutam Sheet, Abhishek Gaurav, Gohil Singh Thakur, **Zeba Haque**, Ashok Kumar Ganguli, Leena Aggarwal, “Point-contact spectroscopy on the 3-Dimensional Dirac Semi-metal  $\text{Cd}_3\text{As}_2$ ”, *APS March Meeting*, 2015.
4. Leena Aggarwal, Abhishek Gourav Sinha, Gohil S Thakur, **Zeba Haque**, Ashok K Ganguli, Goutam Sheet, “Origin of Mesoscopic Superconductivity at  $\text{Cd}_3\text{As}_2$  Point-Contacts”, *APS March Meeting*, 2016.
5. Kento Ishigaki, Jun Gouchi, Kiyoshi Torizuka, Sonachalam Arumugam, Ashok Kumar Ganguli, Ganesan Kalaiselvan, **Zeba Haque**, Gohil Singh Thakur, Laxmi Chand Gupta, YoshiyaUwatoko, “Pressure Effect on the  $\text{BiS}_2$  Layered Compound  $\text{Eu}_3\text{Bi}_2\text{S}_4\text{F}_4$ ”, *Proceedings of the International Conference on Strongly Correlated Electron Systems*, 2020.
6. Tomoko Deguchi, Yu Kawasaki, Yutaka Kishimoto, Koichi Nakamura, Yusuke Nakai, Takeshi Mito, **Zeba Haque**, Laxmi Chand Gupta, Ashok Kumar Ganguli, “NMR Study of Layered Eu-based

Bismuth-Sulfide  $\text{EuFBiS}_2$ ”, *Proceedings of the International Conference on Strongly Correlated Electron Systems*, 2020.

#### **Conference / Workshops Attended:**

1. Attended Indo – Japan Conference on “**New functionalities in electronic and magnetic materials**”. 18 – 20 Oct. 2012, SSCU – IISc, Bangalore, India.
2. Poster entitled “**Investigation of superconductivity in halide-doped SmOFeAs**” was presented at CRSI-RSC Symposium in Chemistry, 1-3 Feb. 2013, Department of Chemistry, BHU, Varanasi, India.
3. Attended one day In-House Symposium (New horizons in Chemical Sciences) and presented a Poster entitled “**Investigation of Superconductivity in Fe-based oxypnictide compounds**” on 16<sup>th</sup> Nov. 2013 at the department of chemistry, IIT Delhi.
4. Attended “Winter School” 2013 on Frontiers in Material Science, from 2<sup>nd</sup> – 6<sup>th</sup> Dec. 2013, JNCASR, Bangalore. Presented a poster entitled “**Investigation of superconductivity in Fe-based oxypnictides compounds**”. **Awarded the prize for outstanding performance in a test conducted there.**
5. Participated in the “**Computational Material Science course**” between 3<sup>rd</sup>- 5<sup>th</sup> Mar. 2014, held at JNU.
6. Poster entitled “**Effect of O- and Mn-Doping on Superconductivity in  $\text{FeTe}_{0.5}\text{Se}_{0.5}$  Superconductor**” was presented at open house on 19<sup>th</sup> Apr. 2014 at IIT Delhi.
7. Participated in a workshop on “**Physical Property Measurement System (PPMS)**” at AIRF, JNU held on 15<sup>th</sup> – 16<sup>th</sup> Sept. 2014.
8. Oral and poster presentation on “**CuFeAs: A new member in the 111-family of iron pnictides**” was presented at international conference on advanced materials: current trends & future prospects between 28<sup>th</sup> May-2<sup>nd</sup> Jun. 2014 at Manali. **Awarded best oral and poster prize.**
9. Attended one day 2<sup>nd</sup> In-House Symposium (New horizons in Chemical Sciences) and presented a Poster entitled “**Structural and magnetic properties of Heusler alloys**” on 11<sup>th</sup> Dec. 2014 at the department of chemistry, IIT Delhi.
10. Attended “Frontiers in Advanced Materials- FAM 2015”, from 15<sup>nd</sup> – 18<sup>th</sup> Jun. 2015, IISc., Bangalore. Presented a poster entitled “**Structural and magnetic properties of Heusler alloys**”.
11. Participated in one week MHRD sponsored GIAN course on “**Recent Developments in Nano**

- Materials for Energy and Health Care Applications**” from 19<sup>th</sup> – 24<sup>th</sup> Dec. 2016, Jamia Millia Islamia, New Delhi.
12. Participated in Annual Open House 2017 and presented a Poster entitled "**Unusual Mixed Valence of Eu in EuSr<sub>2</sub>Bi<sub>2</sub>S<sub>4</sub>F<sub>4</sub> and Eu<sub>2</sub>SrBi<sub>2</sub>S<sub>4</sub>F<sub>4</sub>: Mössbauer and XPS Investigations**" on 22<sup>nd</sup> Apr. 2017, IIT Delhi.
  13. Presented an oraltalk entitled “**Superconductivity and mixed valence state of Eu in Eu<sub>3-x</sub>Sr<sub>x</sub>Bi<sub>2</sub>S<sub>4</sub>F<sub>4</sub> (x = 1 and 2) and their Se-doped analogues**” in DST PURSE sponsored National seminar on biophysics” (Biophysika 2019) on 4<sup>th</sup> Oct. 2019, Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, New Delhi.
  14. Participated in the International virtual conference on “**Advanced Materials for Energy and Environmental Applications, ICAMEEA-2020**” on 26<sup>th</sup>–27<sup>th</sup> Jun. 2020, Bharathidasan University, Trichy, Tamil Nadu.
  15. Participated in “**Indo-US Webinar&Lecture Series**” from 1<sup>st</sup>–9<sup>th</sup> Jun. 2021, Department of Chemistry, Jamia Millia Islamia, New Delhi.
  16. Attended the National workshop on “**Solid Waste Management**”, on 30<sup>th</sup>– 31<sup>st</sup> Jul. 2021, Delhi Research Implementation and Innovation (DRIIV).
  17. Participated and presented a poster entitled “**Pb-Substitution in Eu<sub>3</sub>Bi<sub>2</sub>S<sub>4</sub>F<sub>4</sub>: A superconductor to insulator transition**”, from 18<sup>th</sup>– 20<sup>th</sup> Aug. 2021, at the 3<sup>rd</sup> AAAFM-UCLA International Conference, UCLA.
  18. Attended one-day webinar on “**Clean Energy Technologies**”, on 18<sup>th</sup> Sept. 2021, Department of Chemical Engineering, IIT ISM Dhanbad.
  19. Participated in an International Hybrid Meeting on “**Physics and Chemistry of Advanced Materials (PCAM-2021)**” from 24<sup>th</sup>–27<sup>th</sup>Oct. 2021, IIT Delhi & Kasauli HP.

## **REFERENCES**

### **1. Prof. Ashok Kumar Ganguli**

Director, Indian Institute of Science Education and Research,  
Berhampur, Odisha-760010, India

Former Dy. Director (Strategic & Planning) & Professor  
Department of Chemistry, IIT Delhi

Founding Director (2013-18), Institute of Nano Science & Technology,

Dept. of Science & Technology, Govt. of India, Habitat Centre,  
Sector-64, Phase- X, Mohali, Punjab, India

Mobile No. 9810464112

Email: [director@iiserbpr.ac.in](mailto:director@iiserbpr.ac.in) or [ashokganguliiitd@gmail.com](mailto:ashokganguliiitd@gmail.com)

**2. Prof. S. Patnaik**

Professor, School of Physical Sciences, JNU

Tel. No. 011-267047

Email: [spatnaik@mail.jnu.ac.in](mailto:spatnaik@mail.jnu.ac.in)

**DECLARATION**

I hereby declare that the above information is correct and true to the best of my knowledge.



Dr. Zeba(Ph.D., IIT Delhi)

Assistant Professor

Department of Chemistry

Jamia Millia Islamia (A Central University)

New Delhi-110025