MO ASHAFAQ

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OBJECTIVE

To pursue a versatile and goal oriented career in my specialized area using my skills and experience for the development of the organization and give an environment to constantly learn new things which supports me to excel in my fields of endeavor.

PROFILE SUMMARY

- **5+ years** of relevant experience in **Research & Development functions.**
- Expertise in handling end-to-end research work.
- **Dynamic instructor & thought leader** focused on providing students with a rigorous & challenging education, along with confidence, tools & skills required to build & advance towards a framework of success.
- **QUALIFIED JRF (NET) 2017 Rank 81**
- **SRF**
- **Teaching experience of approximate one year**
- **Published nineteen (19) SCI listed research papers in International journals**.
- **Published a paper in very high impact journal COORDINATION CHEMISTRY REVIEWS (IMPACT FACTOR = 22.3).**
- **Two (2) of them papers INORGANIC CHEMISTRY (IMPACT FACTOR: 5.165) AND CRYSTAL GROWTH AND DESIGN (IMPACT FACTOR: 4.089) published in very high reputed publisher AMERICAN CHEMICAL SOCIETY (ACS).**
- **Highest impact factor of the journal paper 22.3**
- **Total impact factor of the papers 57**
- Paper presented in **nine (9)** National and **three (3)** International conferences
- Attended **three (3)** workshops.

ACHIEVEMENTS / AWARDS

- Award UGC Fellowship.
- **JRF** (**NET**) 2017 Rank 81
- **SRF**

RESEARCH INTEREST ENTAILS:

- *Single Molecule Magnets (SMMs)*
- *Metal Organic Frameworks (MOFs)*
- *Polynuclear Clusters/Coinage*
- *Nitro Explosive/ Metal ion Sensing*

KNOWLEDGE PREVIEW

Spectroscopic Techniques

- FT-IR
- Fluorescence / TRF
- UV-Visible
- NMR

- EPR
- ESI-Mass
- Cyclic Voltammeter
- CD
- TGA
- PXRD

Self-Operate instruments

- FT-IR
- Fluorescence / TRF
- Cyclic Voltammeter
- EPR
- UV-Visible
- CD
- TGA/PXRD
- GC-Mass

RESEARCH EXPERIENCE

Feb 2014-May 2019 with Department of Chemistry Aligarh Muslim University (AMU) Aligarh, India

Research work during M.Phil:

Title: Synthesis and spectral characterization of metal complexes containing N and O donor ligands.

Research work during PhD:

Title: Synthesis and Spectral characterization of metal complexes with ligands containing electron rich biting centers.

The doctoral research is broadly focused on the chemistry of transition metal complexes incorporating mixed ligands. Using polyalcohol ligands I have constructed polynuclear metal clusters with encompassing structural as well as applied diversities. These complexes are proven to be used for single molecule magnet (SMM) and also for catalytic activities. Polyalcohol ligands have recently been proved to be wonderful chelating agents towards 3d metal ions; they form di, tri, and polynuclear complexes depicting special structural features and topologies. Such clusters are widely used in material science, for examples, to design single molecule magnets, single chain magnets, and in catalysis. These important properties of the above clusters prompted us to carry out synthesis and characterization of some new metal clusters.

Supervisor: **Dr. Mohd Khalid,** Department of Chemistry, Aligarh Muslim University (AMU) Aligarh, India.

TEACHING EXPERIENCE

- **Involved in teaching of pre-medical/Engineering students in the Coaching Center, Aligarh from 2012–2013.**

EDUCATION

Course Name	*Institute/School*	*University/Board*	*Year*	*Percentage*
Ph.D. (Chemistry)	Dept. of Chemistry	Aligarh Muslim University, Aligarh	2019	Awarded
M.Phil (Chemistry)	Dept. of Chemistry	Aligarh Muslim University, Aligarh	2015	76.4%
M.Sc. (Chemistry)	Dept. of Chemistry	Aligarh Muslim University, Aligarh	2012	69.2%
B.Sc. (Hons) Chemistry	Dept. of Chemistry	Aligarh Muslim University, Aligarh	2010	61.0%

10+2	S.D.D.A. Intercollege	U.P. BOARD	2007	72.6%
10	S.D.D.A. Intercollege	U.P. BOARD	2005	60.5%

TECHNICAL TRANINGS & WORKSHOPS

In my 5+ years of active research career, I have been making extensive use of most of the tools and techniques required to carry out the research studies in coordination chemistry and material science. Few endpoints and techniques are:

- **Mo Ashafaq**. **Introduction to Gaussian16: Theory and Practice Workshop**, 8th–12th Jan 2018, organized by **SCUBE and GAUSSIAN**, New Delhi.
- **Mo Ashafaq**. National Workshop on "**Theory and Applications of Single Crystal X-Ray Diffraction**", 8th–10th Nov 2017, organized by **SAIF, IIT Madras**.
- **Mo Ashafaq**. Symposium cum workshop on "**Macromolecular Interactions in Biology**", 25-26 March 2015, Interdisciplinary Biotechnology Unit. AMU, Aligarh.

IT SKILLS

- MS-Office
- Mercury for crystal view
- Origin 9.0
- Molecular docking Software Auto Dock Vina, Hex and Chimera
- Chemcraft
- Diamond for crystal view
- Chemdraw and Modeling
- Wingx to solve crystal structure
- Avogadro
- Crystal Explorer for surface analysis
- Gaussian for DFT studies

PERSONAL DETAILS

Date of Birth:	30 Aug. 1990
Father's Name	Sh. Abbas Ahmad
Mother's Name	Ms. Amina Begam
Permanent Address:	Mohalla Nawab Ganj, Post Sandi, Distt. Hardoi, 201403, U.P., India
Present Address	Room No. 77, Aftab Hostel, Aftab Hall, AMU, Aligarh, 202002, India
Languages Known:	English, Hindi and Urdu
Nationality:	Indian
Marital Status:	Single

References:

Name	Contacts
1. Dr. Mohd Khalid Department of Chemistry AMU Aligarh	khalid215@gmail.com +91-9058639100
2. Dr. M. Shahid Department of Chemistry AMU Aligarh	shahid81chem@gmail.com +91-9359264128

3. Prof. Zafar Ahmad Siddiqi (D/O Chemistry AMU Aligarh) zafarasiddiqi@gmail.com +91-9319084391

** Kindly refer to the annexure for the details of Publications, Ongoing Articles and National & International Conferences:*

ANNEXURE

PUBLICATIONS

1. Rakesh Kumar Gupta, Muhammad Riaz, **Mo Ashafaq**, Zhi-Yong Gao, Rajender S. Varma, Da-Cheng Lie, Ping Cui, Chen-Ho Tung, Di Sun, Adenine-incorporated metal–organic frameworks, ***COORDINATION CHEMISTRY REVIEWS (2022) (Impact Factor: 22.315).***

2. Zhi Wang, **Mo Ashafaq**, Yu-Fan Lu, Lei Feng, Mohamedally Kurmoo, Hongzhi Liu, Zhi-Yong Gao, Yun-Wu Li, and Di Sun, Silica−Organometallic One-Dimensional Hybrid Employing a Ag−πC=C Bond Connecting Alternating $Ag_4(NO_3)_4$ and Octavinylsilsesquioxane, ***Inorg. Chem. (ACS), (2021), (Impact Factor: 5.165).***

3. **Mo Ashafaq**, Mohd Khalid, Mukul Raizada, Anzar Ali, Mohd Faizan, M. Shahid, Musheer Ahmad, and Ray J. Butcher, Crystal engineering and magnetostructural properties of newly designed azide/acetate-bridged Mn12 coordination polymers, ***Cryst. Growth & Desg. (ACS)***, **(2019) (Impact Factor: 4.10)**.

4. **Mo Ashafaq**, Mohd Khalid, Mukul Raizada, Anzar Ali, Mohd Faizan, M. Shahid, and Musheer Ahmad, Fe_6 clusters of tripodal alcohol ligands: synthesis, structures and magnetostructural properties, ***Polyhedron***, **(2019), (Impact Factor: 2.343)**.

5. **Mo Ashafaq**, Mukul Raizada, Mohd Khalid, M. Shahid, Musheer Ahmad and Zafar A. Siddiqi, Structural characterization, magnetic studies, and catecholase-like activities of Mn12 clusters, ***J. Coord. Chem.*** **(2018), (Impact Factor: 1.703)**.

6. **Mo Ashafaq,** Mohd Khalid, Mukul Raizada, M. Shahwaz Ahmad, M. Shahnawaz Khan, M. Shahid, Musheer Ahmad, A Zn‐Based Fluorescent Coordination Polymer as Bifunctional Sensor: Sensitive and Selective Aqueous‐Phase Detection of Picric Acid and Heavy Metal Ion, ***J. Inorg Organomet Polym*** **(2020), (Impact Factor: 1.670)**.

7. Mukul Raizada, F. Sama, **Mo Ashafaq**, M. Shahid, M. Ahmad, Zafar A. Siddiqi, New hybrid polyoxovanadate–Cu complex with V···H interactions and dual aqueous-phase sensing properties for picric acid and Pd2+: X-ray analysis, magnetic and theoretical studies, and mechanistic insights into the hybrid's sensing capabilities, ***J. Mat. Chem. C.,*** **(2017), (Impact Factor: 7.059)**.

8. Mukul Raizada, F. Sama, **Mo Ashafaq**, M. Shahid, M. Khalid, M. Ahmad, Zafar A. Siddiqi, Synthesis, structure and magnetic studies of lanthanide metal–organic frameworks (Ln-MOFs): Aqueous phase highly selective sensors for picric acid as well as arsenic ion, ***Polyhedron,*** **(2017), (Impact Factor: 2.343)**.

9. M. Shahid, A. Siddique, **Mo Ashafaq**, M. Raizada, F. Sama, I. A. Ansari, M. N. Ahamad, M. Idrisi, P. Kumar, Z. A. Siddiqi, Spectroscopic investigations on La3+, Pr3+, Nd3+ and Gd3+ complexes of a multidentate ligating system: Luminescence properties and biological activities, ***J. Molecular structure,*** **(2017), (Impact Factor: 2.463)**.

10. F. Sama, I. A. Ansari, Mukul Raizada, M. Ahmad, **Mo Ashafaq**, M. Shahid, B. Das, K. Shankar, Z. A. Siddiqi, Design, structural characterization and catalytic activity of incomplete dicubane clusters of N-substituted diethanolamines, ***J. Cluster Sci.***, **(2016), (Impact Factor: 1.715)**

11. M. Shahnawaz Khan, Mohd Khalid, M. Shahwaz Ahmad, Musheer Ahmad, **Mo Ashafaq**, Rahisuddin, Rizwan Arif, M. Shahid, Synthesis, spectral and crystallographic study, DNA binding and molecular docking studies of homo dinuclear Co(II) and Ni(II) complexes, ***J. Molecular structure***, **(2018), (Impact Factor: 2.463)**

12. Farasha Sama, Mukul Raizada, **Mo Ashafaq**, M. Naqi Ahamad, Mantasha I., Khushboo Iman, M. Shahid, Rahisuddin, Rizwan Arif, Naseer A. Shah, Hatem A.M. Saleh, Synthesis, structure and DNA binding properties of

a homodinuclear Cu(II) complex: An experimental and theoretical approach, ***J. Molecular structure***, (**2018**), (**Impact Factor: 2.463**)

13. Fahad Ali, Rahul, Smita Jyoti, Falaq Naz, **Mo Ashafaq**, M. Shahid, Yasir Hasan Siddique, Therapeutic potential of luteolin in transgenic Drosophila model of Alzheimer's disease, ***Neuroscience Letters***, (**2019**), (**Impact Factor: 2.180**).
14. M. Shahwaz Ahmad, Mohd Khalid, M. Shahnawaz Khan, M. Shahid, Musheer Ahmad, Monika, Azaj Ansari, **Mo Ashafaq,** Exploring catecholase activity in dinuclear Mn(II) and Cu(II) complexes: An experimental and theoretical approach, ***New J. Chem.***, (**2020**), (**Impact Factor: 3.069**).
15. Samrah kamal, Mohd Khalid, M. Shahnawaz Khan, M. Shahid, **Mo Ashafaq**, I. Mantasha, M. Shahwaz Ahmad, Musheer Ahmad, Mohd Faizan, Shabbir Ahmad, ***Inorganica Chimica Acta*, (2020), (Impact Factor: 2.0)**
16. Mukul Raizada, M. Shahid, Sameer Hussain, **Mo Ashafaq**, Zafar A. Siddiqi, A new antiferromagnetic Dy_6 oxido–material as a multifunctional aqueous phase sensor for picric acid as well as Fe3+ ions, ***Materials Advances, (2020), (Impact Factor: pending).***
17. Mohammad Shahwaz Ahmad, Mohd Khalid, Mohammad Shahnawaz Khan, Mohammad Shahid, Musheer Ahmad, Haris Saeed, Mohammad Owais, Mo Ashafaq Tuning biological activity in dinuclear Cu (II) complexes derived from pyrazine ligands: Structure, magnetism, catecholase, antimicrobial, antibiofilm, and antibreast cancer activity, ***Applied Organometallic Chemistry* (2021), (*Impact Factor: 3.581*)**

LIST OF PAPERS UNDER COMMUNICATION

1. M. Raizada, F. Sama, **Mo Ashafaq**, M. Shahid, M. Ahmad and Z. A. Siddiqi, First report on Ni_4 cluster of triethanolamine containing incomplete dicubane core: X-ray crystallography, magnetism, theoretical, and catecholase-like activities, ***Communicated, New j chem. (2022), (Impact Factor: 3.277)***
2. Mo Ashafaq, M. Shahwaz, M. Shahid, A one dimensional organotin coordination polymer for selective adsorption and separation of organic dyes, ***Communicated, J. Inorganic and Organometallic polymers and Materials, (2022), (Impact Factor: 3.13)***

NATIONAL / INTERNATIONAL CONFERENCES

- **Mo Ashafaq**, Mohd Khalid, Crystal engineering and magnetostructural properties of newly designed azide/acetate-bridged Mn_{12} coordination polymers, International Conference on Emerging Trends in Chemical Sciences, **15-16 Feb 2020,** *Department of Chemistry, Aligarh Muslim University, Aligarh, India* (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid. Synthesis and magnetostructural properties of newly designed azide/acetate bridged Mn_{12} coordination polymers. 2nd International conference on Chemistry, Industry and Environment**, 18-19 Feb. 2019**, *Department of Applied Chemistry, ZHCT, Aligarh Muslim University*, *Aligarh*, *India* (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid. Fe_6 clusters derived from tripodal polyalcohol ligands: Structural features and magnetostructural properties. National Conference on Emerging Trends in Chemical Sciences, **23-24 Feb. 2019**, *Department of Chemistry, Aligarh Muslim University, Aligarh, India* (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid, Synthesis, structures, magnetic properties and theoretical studies of mixed–valence (MnII/MnIII) Mn12 clusters, National Conference on Emerging Trends in Chemical Sciences, **24-25 Feb. 2018,** Deptt of Chemistry, AMU, Aligarh (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid, Synthesis, structures, magnetic properties and theoretical studies of mixed–valence (MnII/MnIII) Mn12 clusters, Thematic Conference in Chemical Sciences (TC2S)-2017: Sustainable Chemistry, **15-16 May 2017,** IIT Ropar, India (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid. Synthesis, structure and magnetism of mixed–valence (II/III) Mn 12 clusters based on polyalcohol ligands, National Conference on Emerging Trends in Chemical Sciences **25-26 March 2017,** Deptt of Chemistry, AMU, Aligarh (**Poster Presented**).

- **Mo Ashafaq**, Mohd Khalid, Synthesis and spectral characterization of novel homo–bimetallic transition metal complexes $[M_2(oda)_2(Hea)_2]$ and $[M_2(oda)_2(Hpa)_2]$ (H_2oda = oxydiacetic acid, Hea = ethanol amine, Hpa = propanol amine and M = Fe, Co, Ni, Cu), International Conference on Recent Advances in Chemical Sciences, **29-30 March 2016,** Deptt of Chemistry, AMU, Aligarh (**Poster Presented**).

- **Mo Ashafaq,** Symposium cum workshop on Macromolecular Interactions in Biology, **25-26 March 2015,** Interdisciplinary Biotechnology Unit, AMU, Aligarh, **(Attended)**

- **Mo Ashafaq.** National Symposium on Chemistry, **22 March 2014**, Dept. of Chemistry AMU, Aligarh **(Attended)**

(Mo Ashafaq)