

## **Dr. Khalid Mujasam Batoo**

### ***Associate Professor***

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### **PRESENT DESIGNATION**

*At present I am working as an Associate Professor at King Abdullah Institute for nanotechnology, King Saud University, P.O. Box-2460, Riyadh-11451, Saudi Arabia, since 2010.*

### **PREVIOUS EMPLOYMENT**

**2010-2015** Assistant Professor at King Abdullah Intitule for Nanotechnology from 18 May May to 01 March 2015.

**2007-2010** Project Fellow at Inter University Accelerator University Center, New Delhi, India between 08 April 2007 to 19 April 2010.

### **ACADEMIC QUALIFICATIONS**

**2005-2009** **PhD (Nanomaterials)** from Department of Applied Physics, Zakir Hussein College of Engineering and Technology, Aligarh Muslim University, Aligarh, 202002, India.

**Advisor:** Prof. Alimuddin. (Advisor, Research and Ex. Head of the Department)

**Thesis Topic** “Study of synthesis, electrical and magnetic properties of spinel Nano ferrites”

**2003-2005** **M.Sc. (Physics)** from Dr. Bhamra, Rao Ambedkar University, Agra, India, **First division.**

**Thesis Topic:** Synthesis and tuning of fundamental properties of photovoltaic cells to increase efficiency.

### ❖ COURSES STUDIED IN MASTERS OF PHYSICS DEGREE

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|-----------------------------|-------------------------------------|
| 1. Mathematical Physics     | 6. Atomic Physics                   |
| 2. Quantum Mechanics        | 7. Nuclear Physics                  |
| 3. Statistical Mechanics    | 8. Classical Physics                |
| 4. Electrodynamics          | 9. Electronics and communication    |
| 5. Condensed Matter Physics | 10. Integrated and digital circuits |

### ❖ COURSES STUDIED DURING Ph.D DEGREE

1. Fabrication of Magnetic nanoparticles (Ferrites and dilute magnetic semiconductors) through chemical route methods and solid-state reaction methods.
2. Thin film deposition through Pulse laser deposition technique and RF/DC magnetron sputtering system and their characterization such structural, morphological, optical properties.
3. The study of structural, transport electrical and magnetic properties of ferrite nanoparticles.
4. Swift Heavy Ion (SHI) irradiation using the 15UD-Pelletron facility in order to tune the properties of the powder and thin film materials by irradiation of SHI and their characterization such as structural, transport electrical and magnetic and optical properties with respect to the pristine sample.

### AWARDS AND ACHIEVEMENTS

- 2007-2010 **Junior Research Fellowship (JRF)** from Inter University Accelerator Centre (Govt. Of India), New Delhi, India.
- 2008 Received a travel grant from Department of science and Technology, (DST) New Delhi, India for “The international conference on nanotechnology, opportunities and challenges ICON008” held at King Abdul Aziz University, Jeddah, Saudi Arabia.
- 2009 Received a travel grant from CSIR, New Delhi, for The International conference for Nanotechnology industries the leading technology of 21<sup>st</sup> century” held at King Saud University, Riyadh, Saudi Arabia.

## **INTERNATIONAL LEVEL AWARDS AND ACHIEVEMENTS**

- 2017** Outstanding Scientist in Nanotechnology award from Venus International Research Foundation, India to be held on 11<sup>th</sup> Nov. 2017, Chennai India.
- 2017** Speaker Award, Kingdom Plastic Summit -2017, Holiday Inn, Riyadh-AlQasr, 29<sup>th</sup>-30<sup>th</sup> March, Saudi Arabia.
- 2016** Young faculty award from Venus International Foundation (VICAM / VIFA 2016)- Green Park, Chennai, India.
- 2016** Invited Speaker award at the International conference on Nanomaterials and Nanotechnology (NANO-15) by the KSR College of Technology, Tiruchengode, Tamil Nadu, India, in association with World Class University, South Korea, Trichengode, Tamil Nadu, 25<sup>th</sup>-27<sup>th</sup> Dec. 2016
- 2015** Keynote Speaker Award at the 3<sup>rd</sup> International conference on Nanotechnology and Applications at Hurghada, organized by South Valley University, Qena 23<sup>th</sup>-26<sup>th</sup> Feb. (2016) Egypt.
- 1998** Academic Excellence award from Dover publications, New York, U.S.A.

## ***RESEARCH AND TEACHING EXPERIENCE***

- I am having a research and teaching experience of more than 8 years excluding PhD.
- As Assistant Professor at King Abdullah Institute For Nanotechnology from 18-May 2010 till 01-March 2015.
- As Project Fellow at Inter University Accelerator University Center, New Delhi, India between 08-04-2007 to 19-04-2010.

## ***EDITORIAL BOARD MEMBER OF JOURNALS***

### **1. Innovations in Corrosion and Materials Science (Editor)**

<http://benthamsience.com/journals/innovations-in-corrosion-and-materials-science/>

### **2. Journal of advanced Physical Sciences (Editor)**

<http://jacsdirectory.com/journal-of-advanced-physical-sciences/>

### **3. Journal of Bioelectronics and Nanotechnology (Editor)**

[www.avensonline.org/biotechnology/journal-of-bioelectronics-and-nanotechnology](http://www.avensonline.org/biotechnology/journal-of-bioelectronics-and-nanotechnology)

**4. Asian Journal of Materials Chemistry (Editor)**

<http://ajmc.asianpubs.org/Pages/editorial-advisory-board.aspx>

**5. Journal of Nanoscience and Nanotechnology (Editor)**

<http://jacsdirectory.com/journal-of-nanoscience-and-technology/index.php>

**6. Advanced Scientific Research (Editor)**

<http://www.advancedscientificresearch.in/main.php>

**7. Research journal of Nanoscience and Engineering (Editor)**

<http://www.sryahwpublications.com/research-journal-of-nanoscience-and-engineering/editorial-board>

**8. Journal of Nanoscience and Nanomedicine (Editor)**

<https://www.pulsus.com/journal-nanoscience-nanomedicine/editorial-board.html>

**9. BAOJ Nanotechnology (Editor)**

<http://bioaccent.org/nanotechnology/>

**10. Global Journal of Nanomedicine(Editor)**

<http://junipublishers.com/gjn/editorialboard.php>

**11. BGR Publications (Associate Editor in Chief )**

<http://www.drbgpublications.in/index.php>

**12. Science and Engineering Applications (Editor)**

<http://www.jfips.com/>

## **MEMBERSHIP PROFESSIONAL SOCIETIES**

- Lifetime member of Board of Nano Society of South Valley University, Qena, Egypt.
- Lifetime membership of Rajasthan Science Congress Association (RSCA), India.
- Lifetime membership of Himachal Pradesh Nano Society, India.
- Lifetime Membership of NGO *Centre for Advanced Research and Development, Jaipur, India.*
- Member of the BIT's world congress of Nanoscience and nanotechnology, Xian, China.
- Member of the Nanoscience and Nanotechnology society, Ankara, Turkey.
- Member of the scientific society of King Abdul Aziz City for Science and Technology, Riyadh, Saudi Arabia.

## AREA OF RESEARCH INTEREST

- Nanomaterials
- Spintronics
- Multiferroic and Magnetoelectric Materials
- Magnetic multilayer's (MTJs as GMR)
- Magnetic layered double hydroxide (MLDH).
- Solar cells
- Graphene technology

## MY RESEARCH INTERESTS

- ❖ My research interests are focused on understanding the structural and electromagnetic properties of functional oxide materials such as: nano-magnetic materials (Ferrites, multiferroic, multilayers), dilute magnetic semiconductor materials (DMS) and their applications in modern technology for device making such as in high density data storage, non-volatile memories (MRAM), and applications in biomedical science, such as synthesis of magnetic nanoparticles for drug delivery applications for the treatment of hyperthermia.
- ❖ Fabrication of the Magnetic tunnel junctions (MTJs) in order to build high-density data storage **Giant Magneto Resistance** (GMR) with a high transmission magneto resistance (TMR) ratio and further utilizing the same GMR for the as biosensors such as protein detection. Also, fabrication/deposition of thin films of Yttrium Iron Garnet for the application of the microwave filters and absorbers and to increase the magneto-optic Faraday effect for the telecommunication applications.
- ❖ Designing and fabrication of efficient solar cells using multilayer junction and single cell systems.
- ❖ Deposition and characterization of the oxide thin films such as  $\text{Ce}_2\text{O}_3$ ,  $\text{SnO}_2$ ,  $\text{ZnO}$  with dopant materials such as Sb, F, Sm etc for the application of gas sensing.
- ❖ My research also focuses on the synthesization of various magnetic nanomaterials and their size and doping effects over the structural and transport electromagnetic properties. As a well-established fact, we know that magnetic materials are backbone of modern technology. Soft magnetic materials find great applications in high frequency devices;

such as microwave devices, in computers to read and write memories. My focus is to understand the transport electromagnetic properties to evaluate the ferromagnetic ordering, spin canting, spin pinning effects, cation distribution and size effects and their applications for day today technology.

## **PROJECTS COMPLETED**

1. Title: - *“Study of modifications induced in structural, electrical and magnetic properties of spinel nano ferrites” sponsored by the Inter University Accelerator Centre, New Delhi, India. (10<sup>th</sup> April 2007-9<sup>th</sup> April 2010).*

**Role:** Principal Investigator

**Budget:** - 7000 USD.

**Project Code:** - UFUP-36308

2. Title: -*“Design and characterization of nano composite multiferroic materials for new generation Read Access Memory (RAMs) devices.*

*(Approved by National plan of science and technology, Saudi Arabia). (01-06-2012 to 31-12-2014)*

**Role:** Principal Investigator

**Budget:** - 422, 4000 USD

**Project Code:** - 10NAN1200-02

3. Title: -*“Synthesis of magnetic nanomaterials and characterization”.*

*(Approved by Deanship of Scientific Research King Saud University, Riyadh,, Saudi Arabia).*

**Role:** Co-Investigator

**Budget:** - 40,000 USD

**Project Code:** - RG-PVPP290

4. Title: -*“Interface magnetization and structure in magnetic oxide nano composites”.*

*(Approved by National plan of science and technology, Riyadh-Saudi Arabia)*

**Role:** Principal Investigator

**Budget:** - 310,933 USD

**Project Code:** - 10NAN1999-02

5. **Title:** - *“Synthesization of doped SnO<sub>2</sub>-based materials and their subsequent irradiation with swift heavy ions: Materials for Gas sensing applications”*

*(Approved by King Abdul Aziz City of Science and Technology, Riyadh-Saudi Arabia)*

**Role:** Principal Investigator

**Budget:** - 490, 66 USD

**Project Code:** - MY-3532

## **PROJECTS UNDERGOING**

1. **“Synthesis and characterization of magnetic nanoparticles for the application of magnetic sensors”**

*(Approved by Deanship of Scientific Research King Saud University, Riyadh, Saudi Arabia).*

**Role:** Principle-Investigator

**Budget:** - 40,000 USD

**Project Code:** - RG-1437-030

## **MASTERS AND PHD STUDENTS UNDER SUPERVISION/SUPERVISED**

### **Maters Student:-**

1. **Co-supervisor:-**Sara Assiri, Department of Physics, King Faisal University, Alhasa, Alhafouf, Damam, Saudi Arabia (2012-2014), King Faisal University, Al Hasa, Damam ID:209309041

**Title of dissertation:** Preparation, characterization and evaluation of magnetic nano-structural materials

2. **Co-supervisor:** Magdi Said Abdullah Zehraani, department of Physics, King Saud University, Riyadh Saudi Arabia, (2014-2016). King Saud University ID : 431105471.

**Title of dissertation:** Structural, Electrical and Magnetic Properties of Cobalt Ferrite Thin Films Grown by Pulsed Laser Deposition,

## **EXPERIMENTAL SKILLS**

- **Sample preparation** (nanoparticles)  
Chemical route (Sol-gel, auto combustion, co-precipitation, hydrothermal) methods.
- **Bulk nano particles**

High-energy ball-milling, solid state reaction technique.

➤ ***Thin film Deposition***

Pulsed Laser Deposition (PLD), E-beam, Thermal deposition, dc/rf-magnetron sputtering technique, Spin Coating, Dip Coating.

## **CHARACTERIZATION TECHNIQUES KNOWN**

**Structural and elemental:** X-ray diffraction (XRD), energy dispersive X-ray (EDX), X-ray reflective resonance (XRR).

**Morphological:** Scanning electron microscopy (SEM), Transmission electron spectroscopy (TEM), Scanning Tunneling Microscopy (STM)

**Optical spectroscopy:** UV-spectroscopy, IR spectroscopy, Raman and Photoluminescence spectroscopy, X-ray Photo Spectroscopy (XPS) and Near Edge X-ray Fine Structure (NEXFAS)

**Magnetic measurements:** Mossbauer spectroscopy, DC magnetization.

**Electrical measurements:** Dielectric spectroscopy, Impedance spectroscopy, DC and AC conductivity, Resistivity measurements, Thermal conductivity (all measurements as function of temperature and frequency), P-E Loop tracer, DC polling unit,

**Topography Study:** Atomic force magnetometer (AFM), Magnetic Force Microscopy (MFM).

**Thin Film deposition** Pulse Laser Deposition (PLD), E-beam, Thermal deposition, RF/DC sputtering

## **EXPERTISE IN HANDLING INSTRUMENTS**

Mossbauer spectrometer (Wissenschaftliche Elektronik GMBH), Vibrational sample magnetometer (Quantum Design), LCR meter (HOKIA), Impedance Analyzer (Agilent), Raman spectrometer (Horriba), Transmission electron microscope (TEM) (JEOL), Electrometer (Kithley), X-ray diffraction (PANalytical), UV-Visible Spectrometer (Agilent), Fourier Transform infrared spectrometer (JASCO In), Polarization-Electric field (P-E) Loop tracer (Marine India), DC polling (Marine India), E-beam system (Angstrom), Thermal Deposition system (Angstrom), RF/DC sputtering (Angstrom).



## ANALYSIS TECHNIQUES AND COMPUTER SOFTWARES

WINDOWS based software's like MS-Word, excel, WordStar, PowerPoint, Microsoft word-2007-2013, Origin8, Powder X, Retveld, JCPDS for X-ray diffraction, DOS based NORMOS and Genei-2000 software for Mossbauer analysis, *Z-view* and *Z-plot* software for Impedance analysis, *Image j and Gaton* software for TEM characterization, SPM software for AFM imaging, QUEELS-XPS software.

## KEY NOTE SPEAKER/INVITED TALKS

1. ***“Nanoscience, Science of wonder in the present world and its application”***  
Kingdom plastic summit-2017, Holiday Inn Riyadh - Al Qasr, 29<sup>th</sup> - 30<sup>th</sup> March, Riyadh, Saudi Arabia.
2. ***“Tuning of Ferroelectric properties of ND based thin films for the application of non-volatile memories”*** The 3<sup>rd</sup> International conference on nanotechnology and Applications at Hurgada, organized by South Valley University, Qena, 23<sup>th</sup>-26<sup>th</sup> Feb. (2016) Egypt.
3. ***“Ferroelectric properties and offset polarization in polycrystalline BNdT thin films for the application of RAM devices”*** in *International conference on Nanomaterials and Nanotechnology (NANO-15)* by KSR College of Technology, at Tiruchengode, Tamil Nadu in association with World Class University, South Korea, 7-10 Dec. 2015.
4. ***“Swift Heavy Ion irradiated and characterization of Multiferroic materials for the application of the Read Access memory Devices”***, in *workshop on nanomaterial Applications, at King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia on 18 Nov.-2015.*
5. ***“Entrepreneurial Opportunities in Nanotechnology”*** National Conference On Entrepreneurship Development, at Government Degree College Bemina, Srinagar, Jammu and Kashmir, India, on 14 & 15th Sep-2015.
6. ***“Nanoscience, the science of small size”*** Government Degree College Sopore, Jammu and Kashmir, India, on 8<sup>th</sup> August 2015.
7. ***“Wonders of nanoscience, its applications and future”*** Government Degree College For Women, Molana Azad Road, Srinagar, Jammu and Kashmir, India, on 10<sup>th</sup> August 2015.

8. ***“Transport properties of magnetic tunnel junctions embedded in MgO matrix”*** Nano science and nanotechnology conference Middle East technical University of Ankara, Turkey, 22-25, June 2015.
9. ***“Spin-dependent tunneling in magnetic tunnel junctions embedded in an MgO matrix”***, The 2<sup>nd</sup> International conference on nanotechnology and Applications at South Valley University, Qena, 23<sup>th</sup>-26<sup>th</sup> Feb. (2015) Egypt.
10. ***“Tuning of multiferroic properties in ferroelectric materials for the application of read access memory devices”***, National Conference on Materials and their energy applications, Department of Physics, S.S. Jain Subodh P.G. College, Ram Bagh, Jaipur, Dec. 22<sup>nd</sup>-24<sup>th</sup>, 2014, India.
11. ***“Tuning of ferroelectric properties in  $d^0$  magnetization based materials for the application of Random access memory devices”*** International conference on small science, Dec.8<sup>th</sup>-11<sup>th</sup>, 2014, Kowloon, Hong Kong.
12. ***“Design and characterization of  $d^0$  magnetization based materials as ferroelectric materials for the application RAM devices”***, in International conference on electron microscopy and XXXV annual meeting of the electron microscope society of India (EMSI) University of Delhi, July 9-11, 2014, India.
13. ***“PLD assisted deposition and characterization of Nd doped  $Bi_{4-x}Ti_3O_4$  ferroelectric thin films”***, The 1<sup>st</sup> International conference on nanotechnology and Applications at South Valley University, Qena, 25<sup>th</sup>-28<sup>th</sup> Feb. (2014) Egypt.
14. ***Hyperfine interaction and magnetic properties of  $CoFe_2O_4$  Ferrite nanoparticles at room temperature***, The 1<sup>st</sup> International conference on nanotechnology and Applications, South Valley University, Qena, 25<sup>th</sup>-28<sup>th</sup> Feb. (2014), Egypt.
15. ***“Magnetic and Mossbauer properties of Al doped Ni-Cd ferrite nanoparticles synthesized through sol-gel method”*** The International conference for Nanotechnology industries the leading technology of 21<sup>st</sup> century” King Saud University, Riyadh, Saudi Arabia, 2009.
16. ***“Electrical and magnetic properties of spinel oxide materials***, at international conference on nanotechnology, opportunities and challenges ICON008, King Abdul Aziz University, Jeddah, Saudi Arabia, 2008.

## CONFERENCE SESSION CHAIRED/ORGANISED

1. The 3<sup>rd</sup> International conference on nanotechnology and Applications at Hurghada, organized by South Valley University, Qena 23<sup>th</sup>-26<sup>th</sup> Feb. (2016) Egypt.
2. *International conference on Nanomaterials and Nanotechnology (NANO-15)* by KSR College of Technology, at Tiruchengode, Tamil Nadu in association with World Class University, South Korea, 7-10 Dec. 2015.
3. International conference on small science, Dec.8<sup>th</sup>-11<sup>th</sup>, 2014, Kowloon, Hong Kong.
4. The 2<sup>nd</sup> International conference on nanotechnology and Applications at South Valley University, Qena, 23<sup>th</sup>-26<sup>th</sup> Feb. (2015) Egypt.
5. The 1<sup>st</sup> International conference on nanotechnology and Applications at South Valley University, Qena, 25<sup>th</sup>-28<sup>th</sup> Feb. (2014) Egypt.

## PUBLICATIONS IN PEER REVIEWED INTERNATIONAL JOURNALS

(2017)

1. *“The influence of Ce doping on magnetic properties of Ce: YIG thin films deposited through Pulsed Laser Deposition”* Fida Mohamed, Khalid Mujassam Batoo, Yu-Jun Zhang, Abid Ahmad, Majid Hussain, Yuan-Hua Lin, *Advance Materials letters* (in press).
2. *“Synthesis and Characterization of Y and Sm doped Mg nanoferrites”* Meenakshi Dhiman, Shikha Rana, **Khalid Batoo**, J. K. Sharma and M.Singh, *Integrated Ferroelectrics*, (2017) (in press).
3. *“Role of Indium ion in controlling the ferromagnetic properties of bulk and nano magnetic systems”* Meenakshi Dhiman, **Khalid Batoo**, J. K. Sharma and M.Singh, *Integrated Ferroelectrics*, (2017) (in press).
4. *“Structural, morphological and electrical properties of Cd<sup>2+</sup>doped MgFe<sub>2-x</sub>O<sub>4</sub> Ferrite nanoparticles”*, **Khalid Mujassam Batoo**, Gagan Kumar, Yujie Yang, Y. Al-Douri, Mahavir Singh, Rajshree B. Jotania, Ahmed Imran, *Journal of Alloys and compounds* 726 (2017) 179-186.

5. “*Optimised polyaniline–cadmium ferrite nanocomposite: synthesis, characterisation and alternating current response*” S. Kotresh, Y. T. Ravikiran, S. C. Vijaya Kumari, CH. V. V. Ramana, A. S. Anu, **K. M. Batoo**, *Polymer Bulletin*, DOI 10.1007/s00289-017-2169-x
6. “*Nano Fe<sub>x</sub>Zn<sub>1-x</sub>O as a tuneable and efficient photocatalyst for solar powered degradation of bisphenol A from aqueous environment*” Pooja Dhiman, Mu. Naushad, **Khalid Mujasam Batoo**, Amit Kumar, Gaurav Sharma, Ayman A. Ghfar, Gagan Kumar, M. Singh, *Journal of Cleaner Production*, 165 (2017)1542-1556
7. “*Microstructure and magnetic properties of Zr–Mn substituted M-type SrLa hexaferrites*” Yujie Yang, Fanhou Wang, Juxiang Shao, **Khalid Mujasam Batoo**, Duohui Huang, *Applied Physics A* 123 (2017) 568
8. “*Solution based–spin cast processed LPG sensor at room temperature*” S. Kotresh, Y.T. Ravi kiran, S.C. Vijaya Kumari, Ch.V.V. Ramana, **K.M. Batoo**, *Sensors and Actuators A* 263 (2017) 687–692.

(2016)

9. “*Hyperfine interaction and tuning of magnetic anisotropy of Cu doped CoFe<sub>2</sub>O<sub>4</sub> Ferrite nanoparticles*”, **Khalid Mujasam Batoo**, Dina Salah, Gagan Kumar, Arun Kumar, Mahavir Singh, M. Abd El-sadek, Feroz Ahmad Mir, Ahamad Imran, Daler Adil Jameel, *J. Magnetism Magnetic Materials*, 411 (2016) 91-97.
10. “*Effect of Ni and Au ion irradiations on structural and optical properties of nanocrystalline Sb doped SnO<sub>2</sub> thin films*”, Feroz Ahmed Mir, **Khalid Mujasam Batoo**, *Applied Physics A*. (In press), *Appl. Phys. A* 122 (2016) 418.
11. “*Structural, magnetic and Mössbauer study of BaLa<sub>x</sub>Fe<sub>12-x</sub>O<sub>19</sub> nano hexaferrites synthesized via sol-gel auto-combustion technique*” Virender Pratap Singh, Gagan Kumar, Arun Kumar, Radhey Shyam Rai, M.A. Valente, **Khalid M. Batoo**, R.K. Kotnala, M. Singh, *Ceramic International*, 42 (2016) 5011-5017.
12. “*Investigation of structural, magnetic and Mössbauer properties of Co<sup>2+</sup> and Cu<sup>2+</sup> substituted Ni-Zn nanoferrites*”, Sarveena, Gagan Kumar, Arun Kumar, R.K. Kotnala, **Khalid M. Batoo**, M. Singh, *Ceramic International*, 42 (2016) 4993-5000.

(2015)

13. *Application Oriented Selection of Optimal Sintering Temperature from User Perspective: A Study on  $K_{0.5}Na_{0.5}NbO_3$  Ceramics*, Gaurav Vats, Manish Sharma, Rahul Vaish, Vishal Singh Chauhan , Niyaz Ahamad Madhar, Mohammed Shahabuddin, Jafar M. Parakkandy, **Khalid Mujasam Batoo**, FERROELECTRICS, 481 (2015) 64-76.
14. *Room temperature long range ferromagnetic ordering in  $Ni_{0.58}Zn_{0.42}Co_{0.10}Cu_{0.10}Fe_{1.8}O_4$  nano magnetic system*, Sarveena, R. K. Kotnala, **K. M. Batoo**, Jagdish Chand, S. Verma, and M. Singh, *American Institute of Physics Conference Proceedings* 1665 (2015) 050114; doi: 10.1063/1.4917755.
15. *Mössbauer spectroscopic analysis and temperature dependent electrical study of  $Mg_{0.9}Mn_{0.1}Gd_yFe_{2-y}O_4$  nanoferrites*, Gagan Kumar, Jyoti Shah, R.K. Kotnala, Virender Pratap Singh, Meenakshi Dhiman, Sagar E. Shirsath, M. Shahbuddin, **Khalid M. Batoo**, M. Singh, *Journal of Magnetism and Magnetic Materials*, 390 (2015) 50–55.
16. *Sol–gel auto combustion processed soft Z-type hexa nanoferrites for microwave antenna miniaturization*, Sucheta Sharma, K.S. Daya, Sunil Sharma, Khalid M. Batoo, M. Singh, *Ceramic International*, 1(2015) 7109-7114.
17. “*Dielectric and impedance study of polycrystalline  $Li_{0.35-0.5x}Cd_{0.3}Ni_xFe_{2.35-0.5x}O_4$  ferrites synthesized via a citrate-gel auto combustion method*”, M. Abdullah Dar, Kowsar Majid, **Khalid Mujasam Batoo**, R.K. Kotnala, *Journal of Alloys and Compounds*, 632 (2015) 307-320
18. “*Superparamagnetic behaviour and evidence of weakening in super-exchange interactions with the substitution of  $Gd^{3+}$  ions in the Mg-Mn nanoferrite matrix*”, Gagan Kumara, Jyoti Shah, R. K. Kotnala, Virender Pratap Singh, Sarveena, Godawari Garg, Sagar E. Shirsath, **Khalid M. Batoo**, Mahavir Singh, *Material Research Bulletin*, 63 (2015) 216-225.
19. “*Remarkable magnetization with ultra-low loss  $BaGd_xFe_{12-x}O_{19}$  nano hexaferrites for applications up to C-band*”, Virender Pratap Singh, Gagan Kumar, R. K. Kotnala, Jyoti Shah, Sucheta Sharma, K. S. Daya, **Khalid M. Batoo**, M. Singh, *J. Magnetism and Magnetic Materials*, 378 (2015) 478-484.

(2014)

20. “*Giant energy harvesting potential in (100)-oriented  $0.68PbMg_{1/3}Nb_{2/3-0.32}PbTiO_3$  with  $Pb(Zr_{0.3}Ti_{0.7})O_3/PbO_x$  buffer layer and (001)-oriented  $0.67PbMg_{1/3}Nb_{2/3}O_{3-0.33}PbTiO_3$*

*thin films*” Gaurav Vats, Himmat Singh Kushwaha, Rahul Vaish, Niyaz Ahamad Madhar, Mohammed Shahabuddin, Jafar M. Parakkandy, **Khalid Mujasam Batoo**, *J. Advanced Dielectrics 11 (2014) 1450029*.

21. “*Effects of High Pressure Using Cold Isostatic Press on the Physical Properties of Nano-SiC-Doped MgB<sub>2</sub>*” M. Shahabuddin Shah, Mohammad Shahabuddin, Jafar M. Parakkandy, Nasser S. Alzayed, Niyaz Ahmad Madhar, **Khalid Mujasam Batoo**, *J. Superconductivity and Novel Magnetism*, DOI 10.1007/s10948-014-2687-9.
22. “*Structural, dielectric and magnetic properties of nanocrystalline BaF<sub>12</sub>O<sub>19</sub>hexaferrite processed via sol-gel technique*”, Virender Pratap Singh, Gagan Kumar, Pooja Dhiman, R. K. Kotnala, Jyoti Shah, **Khalid M. Batoo**, M. Singh, *Advanced Material Letters 5 (8) (2014) 447-452*.
23. “*Self-ignited synthesis of Mg–Gd–Mnnanoferrites and impact of cation distribution on the dielectric properties*” Gagan Kumar, Jyoti Shah, R. K. Kotnala, Pooja Dhiman, RituRani, Virender Pratap Singh, Godawari Garg, Sagar E. Shirsath, **Khalid M. Batoo**, M. Singh, *Ceramics International 40 (2014) 14509–14516*.
24. “*Effect of grain size and grain boundary defects on electrical and magnetic properties of Cr doped ZnO nanoparticles*” RezaqNajiAljawfi, F. Rahman, **Khalid M. Batoo**, *J. Molecular Structure, Journal of Molecular Structure 1065-1066 (2014) 199–204*.
25. *Preparation and AC electrical characterizations of Cd doped SnO<sub>2</sub> Nanoparticles*, Feroz Mir, **Khalid M Batoo**, Indrajit Chatterjee, G M Bhat, *Journal of Mater Science: Mater Electron 25 (2014) 1564–1570*.
26. *Crystal structure, morphological, optical and electrical investigations of Oxypeucedanin micro crystals: an isolated compound from a plant*, Feroz A. Mir, G.M. Bhat, K. Ashokan, **K. M. Batoo**, Javid A. Bandy, *J. Materials Science: Materials in Electronics, 25 (2014) 431-437*.

**(2013)**

27. *Influence of temperature on the electric, dielectric and Ac conductivity properties of nano-crystalline zinc substituted cobalt ferrite synthesized by solution combustion method*, Ritu Rani, Gagan Kumar, **Khalid M. Batoo**, M. Singh, *Applied Physics A Material Science Processing, (2013)*.

28. *Extraordinary high dielectric constant, electrical and magnetic properties of Ferrite nanoparticles at room temperature*, **Khalid Mujasam Batoo**, Feroz Ahmed Mir, M.-S. Abd El-sadek, Md. Shahabuddin, Niyaz Ahmed, *Int. J. Nanoparticle Research*, 15 (2013) 1-9.
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1. “*Off set polarization in ferroelectric thin films for the application of RAM Devices*” Fifth Saudi International Meeting on frontiers of Physics, Feb. 16-18, 2016, Jazan University, Jazan, Saudi Arabia.
2. Attended International remote sensing conference, held at King Faisal Conference Hall, Riyadh Intercontinental Hotel-Saudi Arabia, Jan. 17<sup>th</sup>-20<sup>th</sup>, 2016.
3. “*Ferroelectric properties and offset polarization in polycrystalline BNDT thin films for the application of RAM devices*” in *International conference on Nanomaterials and Nanotechnology (NANO-15)* by KSR College of Technology, at Tiruchengode, Tamil Nadu in association with World Class University, South Korea, 7-10 Dec. 2015.  
“*Tuning of multiferroic properties in ferroelectric materials for the application of read access memory devices*”, National Conference on Materials and their energy applications, Department of Physics, S.S. Jain Subodh P.G. College, Ram Bagh, Jaipur, Dec. 22<sup>nd</sup>-24<sup>th</sup>, 2014, India
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6. “*Synthesization and characterization of ferrite nanoparticles for multilayer inductor layer chip inductors and microwave absorption applications*” **Khalid Mujasam Batoo**,

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8. ***“Impedance spectroscopy of  $Mn_{1+x}Fe_{2-2x}Ti_xO_4$  ferrites”*** Khalid Mujasam Batoo, M. Shahnawaz Ansari, DAE, SSPS-2010 Dec.26-30 (2010) India.
9. ***“Study of Structural and Dielectric Properties of Ni-Mg Ferrite Nanoparticles”*** Razia Nongjia, Khalid Mujasam Batoo, Shakeel Khan, Presented at BARC, Mumbai, 23<sup>rd</sup>-25<sup>th</sup> Sep. (2010) India.
10. ***“Influence of Zn doping in nanocrystalline Ni-Cu-Zn ferrites”*** M. Shahnawaz Ansari, Khalid Mujasam Batoo, Alimuddin Presented at D.A.E. SSPS-2009, 14-18 Dec. (2009), India.
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12. ***“Effect of Cu doping on dielectric and impedance properties of  $NiFe_{2-x}O_4$  nanocrystalline ferrites”*** Mohd. Hashim, Khalid Mujasam Batoo, Shalendra Kumar, M. Shahnawaz Ansari, Alimuddin, Presented at workshop on Oxide Materials P-42, May 12-13, (2009), India.
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22. ***“Influence of  $\text{Al}^{3+}$  doping on the structural and electrical properties of nanocrystalline  $\text{Ni}_{0.7}\text{Mg}_{0.3}\text{Al}_x\text{Fe}_{2-x}\text{O}_4$  ferrites”***Razia Nongjai, ***Khalid Mujasam Batoo, Shakeel Khan, Dept. of Physics, D.B.A. Marathwada University, Presented at Dept. of Physics, Aurangabad, Pune, 12<sup>th</sup>-13<sup>th</sup>, March 2010.***
23. ***“Effect of  $\text{Al}^{3+}$  ion doping on structural, electromagnetic properties of spinel  $\text{MnFe}_2\text{O}_4$  ferrite”*** M. Abdullah Dar, ***Khalid Mujasam Batoo, Shalendra Kumar, W.A.***

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