CURRICULUM VITAE

Dr. Ritu Rani

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EDUCATION

Ph.D
Department of Physics, Himachal Pradesh University, Shimla, H.P, India (2007-2013)
M.Phil
Department of Physics, Himachal Pradesh University, Shimla, H.P, India. (2005-2007)
M.Sc.
Department of Physics, Himachal Pradesh University, Shimla, H.P, India. (2003-2005)
B.Sc.
Himachal Pradesh University, Shimla, H.P, India (2000-2003)

Teaching Experience:

- **Assistant Professor (August 2014 to till date) Department of Physics, Kurukshetra University, Kurukshetra. (on Contract Basis)**
- **Assistant Professor University College, Kurukshetra University and Department of Physics, Kurukshetra University, Kurukshetra, Haryana from (JJanuary 2014 to May 2014) (on Contract Basis)**

PROJECT

1. **Innovative Housing technologies for Hilly regions of Himachal Pradesh, with State Council for Science Technolgy and Environment, H.P**
2. **"Design and Characterization of Nano Composite Multiferroic Materials For New Generation Read Access Memory (Rams) Devices" with Dr.Khalid Mujjasom, Associate Professor, King Soud University, Saudi Arabia**

Academic Awards

1. **Project Associate in DST sponsored project.**
2. **Qualified Meritorious fellowship (UGC-BSR).**

Research Interest

- **Material Science**

- **Magnetic Nanomaterials**
- **Metal Oxides**

Synthesis of cobalt zinc nano ferrite and bulk particles and effect of indium doping on the properties of coblat-zinc nanoferrite particles.

- **Multiferroic**

Synthesis and characterization of mutiferroic particles and formation of thin film by Pulsed Laser Deposition technique.

TECHNICAL EXPERTISE

Experimental

- Structural studies in nano and bulk particles.
- Studies of magnetic properties in nanostructured and bulk magnetic materials.
- Room temperature Mössbauer spectroscopy measurements.
- Measurement of dielectric constant and dielectric loss in Microwave Frequency region.
- Measurement of Dielectric constant, dielectric loss, impedance in transition metal doped $Co_{(1-x)}Zn_x In_yFe_{(2-y)}O_4$ nano ferrite.
- Thin film preparation by pulsed laser deposition technique.

Laboratory Experience

• DC magnetization, resistivity and dielectric constant.
• Operation and maintenance of DSC instrument.
• Handling instruments like LCR meter (4285A), Current source (Kiethley 2611 system), P-E loop tracer.

- Operation and maintenance of room temperature Mössbauer set up.
- Operation and maintenance of room temperature Vibrating Sample Magnetometer (VSM).

Programming skill

Programming knowledge includes Normoss fitting to analyze the Mössbauer Spectroscopy.

LIST OF PUBLICATIONS

[1] Sructural, morphological and temperature dependent electric traits of $Co_{0.9}Zn_{0.1}In_xFe_{2-x}O_4$spinel nanoferrites. **R.Rani**, KM batoo, P Sharma, G Anand, GKumar, Sumit Bhardwaj, M.Singh. **Ceramic International**, 47, **2021**,(30902-30910)

[2] Influence of Temperature on the electric, dielectric and Ac conductivity properties of nanocrystalline zinc substituted cobalt ferrite synthesized by solution combustion method**. R.Rani**, G.Kumar, KMBatoo, M.Singh, **Applied Physics A**, 115, **2014** (1401-1407).

[3] Electric and dielectric study of cobalt substituted MgMn nanoferrites synthesized by solution combustion technique. G.Kumar, **R.Rani**, S.Sharma, KMBatoo, M.Singh. **Ceramic International,** 39, **2013** (4813-4818)

[4] electric and dielectric study of zinc substituted cobalt nanoferrites prepared by Solution combustion method. **R.Rani**, G.Kumar, KM Batoo, M.Singh, Americal Journal of Nanomaterials, 1, **2013**(9-12)

[5] Magnetic study of nanocrystalline cobalt substituted Mg-Mn ferrites processed via solution combustion technique. G.Kumar, R.Rani, V.Singh, M.Singh. **Advanced Material Letters.** 4,**2013**(682-287)

[6] Effect of zinc concentration on the magnetic properties of cobalt–zinc nanoferrite, **Ritu Rani,** S.K. Sharma, K. R. Pirota, M. Knobel, Sangeeta Thakur and M. Singh, **Ceramic International, 38, 2012,** 2389-2394.

[7] Structural and Magnetic Studies of $Co_{0.6}Zn_{0.4}Fe_2O_4$ Nanoferrite synthesized by Solution Combustion Method, **Ritu Rani**, Pooja Dhiman, S.K. Sharma, M. Knobel, K. R. Pirota and M. Singh, **Taylor & Francis** (Synthesis and Reactivity in Inorganic, Metal-Organic and Nano-Metal Chemistry), **42,2012,** 360-363**.**

[8] Processing and characterization of cobalt zinc nanoferrite, **Ritu Rani**, Sangeeta Thakur and M.Singh, AIP Conf. Proceeding, **1349, 2011,** 287-288.

[9] Structural and Electrical Properties of Fe Doped ZnO Nanoparticles Synthesized By Solution Combustion Method, Pooja Dhiman, **Ritu Rani** and M.Singh, 56th DAE-SSPS-2011, AIP Proceeding No. **1447**, **2012**, 307-308.

[10] Magnetic properties of Fe doped ZnO nanosystems synthesized by solution combustion method, **Research Journal of Recent Sciences,** Dhiman Pooja , Sharma S.K**,** Knobel. M **,Ritu Rani,** and Singh M, **1(8), 2012**, 48-52.

[11] Ferroelectric and magnetic properties of Nd-doped Bi4 − xFeTi3O12 nanoparticles prepared through the egg-white method, Khalid Mujasam Batoo, Joselito P. Labis, **Ritu Sharma**, Mahavir Singh., **Nanoscale Research Letter**,**7**, **2012,** 511.

[12] Room Temperature Multiferroic Properties Of Nd Doped Ba $_{4-X}$ $FeTi3O_2$ nanoparticles, Khalid Mujassam Batoo, M.Singh, **R.Rani**, Joselito P.Labis , **Journal of Alloys and Compounds**, 564(162-165**)2013**

PAPERS PRESENTED IN CONFERENCES

International Conferences:

[1] "Processing and characterization of Cobalt-Zinc nanoferrite", **Ritu Rani**, Sangeeta Thakur and M. Singh, presented in the 55th DAE Solid State Physics Symposium(2010), Manipal University, Manipal during **December 26-30, 2010**.

[2] "Structural and Magnetic Studies of $Co_{0.6}Zn_{0.4}Fe_2O_4$ Nano Ferrite synthesized by Solution Combustion Method", **Ritu Rani,** S.K. Sharma, M. Knobel, Sangeeta Thakur and M. Singh, International Conference on Advanced and Nano Materials held on **Feb. 23-26, 2011** at Punjab University Chandigarh.

[3] "Structural and Electrical Properties of Fe Doped ZnO Nanoparticles Synthesized By Solution Combustion Method", Pooja Dhiman, **Ritu Rani** and M.Singh, **56th DAE 56, 2011** at Chennai.

[4] "Effect of In^{3+} ions on the structural, electric and dielectric properties of $Co_{0.9}Zn_{0.1}In_xFe_{(2-x)}O_4$ nanoferrite", **Ritu Rani**, Pooja Dhiman and M.Singh, in International Conference on Advanced and Nano materials held on **Feb. 16-18, 2012** at Punjab University Chandigarh.

[5] Pooja Dhiman, **Ritu Rani** and M Singh, in International Conference and Workshop on Nanostructured Ceramics and other Nanomaterials (ICWNCN), March 14-16, 2012.

National Conferences:

- Zonal Level Student Research Convention (**Anveshan-2010)** – **June 5-7, 2010,** held at Jammu University, J & K.
- National Student Research Convention (**Anveshan-2010)** – **August 2010** held at Punjab University, Chandigarh.
- National seminar on Frontiers in Polymer Sciences, **Ritu Rani** on **November 18-19, 2011** at Himachal Pradesh University Shimla.
- Effect of zinc concentration on the magnetic properties of cobalt–zinc nanoferrite, Ritu Rani, Pooja Dhiman, M.Singh, National seminar on Experimental & Computational Techniques in Material Science (ECTMS-2012) National seminar on **March31st-2nd April, 2012** at Physics Department, Himachal Pradesh University Shimla.
- "Synthesis and Magnetic Properties of solution combustion synthesized Fe_2O_3 nanoparticles", Pooja Dhiman, **Ritu Rani,** Amit Kumar and M Singh, National seminar on Experimental & Computational Techniques in Material Science (ECTMS-2012) **March31st-2nd April, 2012** at Physics Department, Himachal Pradesh University Shimla.

WORKSHOPS ATTENDED

- **Workshop** on Characterization Tools for Materials, organized by Department of Physics, Punjab University, Chandigarh, on dated **Feb. 22, 2011**.
- **Workshop-cum Seminar on Microscopic Techniques in Nano Science** held on March **30-April 5, 2011** at Himachal Pradesh University Shimla.