



Dr. Jayashree Das, Ph.D.

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Designation : Professor

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(JOINED THE INSTITUTE IN 2005)

RESEARCH INTERESTS

Experimental condensed matter Physics:

Synthesis and characterisation of ZnO based DMS systems; bulk, film and nanomaterials. Un-doped and doped Multiferroics (BiFeO₃) Materials; (Bulk) and nanoparticles. Colossal Magneto-resistance Materials (Bulk & Thin film by spray Pyrolysis), Nano-structured materials. High T_c Superconductors; Iron pnictides & YBCO, NRF project on ZnO, TiO₂, and SnO₂ based DMS material in South Africa

Academic Qualifications:

Post- Doc, University of South Africa (UNISA), South Africa.

Ph. D. (Physics), Utkal University, India

M. Sc. (Physics) Utkal University, India (Gold Medal)

Specializations: Solid State Physics.

Teaching Experience:

32 years in teaching Engineering Physics, Applied Physics, Modern Physics, Semiconductor devices, Engineering Materials, Electronics Devices

Industrial Experience: Nil

Research Experience:

16 years in the field of DMS, BFO, High T_c Superconductors and nanomaterials

**JOURNAL
INTERNATIONAL:**

- [1] Novel normal-state low field microwave absorption in $\text{SmFeAsO}_{1-x}\text{F}_x$ iron pnictide superconductors, R.B. Onyancha, J. Shimoyam, **J. Das**, H. Ogino, U.O. Aigbe, V.V. Srinivasu, **Solid State Communications (ELSEVIER)** 307 (2020) 113800
- [2]. Cr doped ZnO: Investigation of magnetic behaviour through SQUID and ESR Studies, P.E. Amami, **J. Das**, D.K. Mishra, V.V. Srinivasu, D.R. Sahu, B.K. Roul; **Physica B: Condensed Matter** (ELSEVIER) 572 (2019) 60–65
- [3]. Low-field microwave absorption in $\text{Zn}_{1-x}(\text{Mn:Fe(Ni)})_x\text{O}$ ($x = 0.02$) system: hysteresis, line shapes and powdering effects, T. S. Mahule, **J. Das**, V. V. Srinivasu, **Applied Physics A** (Springer) (2019) 125:231, <https://doi.org/10.1007/s00339-019-2509-9>
- [4]. Resistive Switching Behaviour in PMMA/Al:ZnO Composite Films, S. Vallabhapurapu, L.D. Varma Sangani, M. Ghanashyam Krishna, **J. Das**, C. Tu, S. Du and A. Srinivasan, **ACTA PHYSICA POLONICA A**, (Institute of Physics of the Polish Academy of Sciences) No. 1, Vol. 134 (2018), 68-70
- [5]. Low Field Microwave Absorption in Mn:Ni Co-Doped ZnO μm Size Powders, T.S. Mahule, **J. Das**, D.R. Sahu and V.V. Srinivasu, **ACTA PHYSICA POLONICA A**, (Institute of Physics of the Polish Academy of Sciences) No. 1, Vol. 134 (2018), 326-328
- [6]. Electron spin resonance studies of $\text{Bi}_{1-x}\text{SrxFeO}_3$ nanoparticulates: Observation of an enhanced spin canting over a large temperature range, S. Titus, S. Balakumar, M. Sakar, **J. Das**, V.V. Srinivasu, **Solid State Communications**, Elsevier) Vol 268, December 2017, 61-63
- [7]. Non-Resonant Microwave Absorption in $\text{SmFeAsO}_{0.80}\text{F}_{0.20}$: Line Shape and Structure Evolution with Temperature, R. B. Onyancha, J. Shimoyama, **J. Das**, K. Hayashi, H. Ogino, V. V. Srinivasu, **J. Superconductivity and Novel magnetism**(Springer), DOI: 10.1007/s10948-017-4074-9.
- [8]. Spin canting and Magnetism in Nano-crystalline $\text{Zn}_{1-x}\text{Al}_x\text{O}$, **J.Das**, D.K. Mishra, V.V. Srinivasu, **Journal of Alloys and Compounds** (Elsevier), 704 (2017) 237-244.
- [9]. Non-resonant Microwave Absorption in Nano Nickel Added YBCO Powders: Observation of Multiple Phase Reversals, F. Nemangwele, V. Sankaran, B. K. Roul, **J. Das**, V. V. Srinivasu, **J. Superconductivity and Novel**

magnetism(Springer), DOI: 10.1007/s10948-016-3902-7, May 2017, Volume 30, [Issue 5](#), 1353–1357

- [10]. Electron Spin Resonance Studies of Undoped and Dysprosium Doped Bismuth Ferrite Nanoparticles, S. Titus, V. V. Srinivasu, S. Balakumar, M. Sakar, **J. Das, J. Superconductivity and Novel magnetism**(Springer), DOI: 10.1007/s10948-016-3778-6, March 2017, Volume 30, [Issue 3](#), 819–823
- [11]. Electron spin resonance study of co-doped ZnO system: Spin Canted Magnetism and Sintering effects, T. S. Mahule, V. V. Srinivasu and **J. Das, J. Superconductivity and Novel magnetism**(Springer), DOI: 10.1007/s10948-016-3676-y, May 2017, Volume 30, [Issue 5](#), 1377–1380
- [12]. Observation of Low Field Microwave Absorption in co-doped ZnO System, Tebogo S. Mahule, and Vijaya. V. Srinivasu, **J. Das, Solid State Communication** (Elsevier), 243(2016)60–64
- [13]. Mn doping effect on optical and ESR studies of Zn_{1-x}Mn_xO compound sintered at different temperatures, T. Mahule, V. V. Srinivasu, and **J. Das, AIP Conference Proceedings**, 1728, 020069 (2016); doi: 10.1063/1.4946120
- [14]. Structural, electrical and magnetic behaviour in high temperature sintered Zn_{1-x}Mn_xO, **J. Das**, D. K. Mishra, V. Srinivasu, D. R. Sahu and B. K. Roul, **Indian Journal of Physics** (Springer), DOI 10.1007/s12648-015-0693-9, (November 2015) 89(11):1143–1151
- [15]. Photoluminescence and Raman studies for the confirmation of oxygen vacancies to induce ferromagnetism in Fe doped Mn:ZnO compound, **J. Das**, D. K. Mishra, V. V. Srinivasu, D. R. Sahu, B. K. Roul, **Journal of Magnetism and Magnetic Materials** (Elsevier), 382(2015)111–116
- [16]. Temperature-dependent ferromagnetic behavior in nanocrystalline ZnO synthesized by pyrophoric technique U. Routray, R. Dash, J. R. Mohapatra, **J. Das**, V. V. Srinivasu, D. K. Mishra, **Materials Letters** (Elsevier), 137(2014)29–31
- [17]. Structural and magnetic property of ZnO: Mn bulk ceramic doped with rare earth (Gd/Sm) atoms, **J. Das**, D. K. Mishra, D. R. Sahu, B. K. Roul, **Physica B: Condensed Matter** (Elsevier) 407 (2012) 3575–3579.
- [18]. Unusual ferromagnetism in high pure ZnO sintered ceramics, **J. Das**, S. K. Pradhan, D. K. Mishra, D. R. Sahu, S. Sarangi, S. Verma, B. B. Nayak, Jow-Lay Huang and B. K. Roul, **Materials Research Bulletin (Elsevier)**, 46 (2011) 42–47.
- [19]. No room temperature ferromagnetism in Mn over-doped Zn_{1-x}Mn_xO (x>0.02), **J. Das**, D. K. Mishra, D. R. Sahu, S. K. Pradhan and B. K. Roul, **Journal of Magnetism and Magnetic Materials** (Elsevier) 323 (2011) 641–645.
- [20]. Influence of Ni doping on magnetic behavior of Mn doped ZnO, **J. Das**, D. K. Mishra, D. R. Sahu and B. K. Roul, **Materials Letters** (Elsevier) 65 (2011) 598–601
- [21]. Room temperature multiferroicity in Bi rich Fe deficient Gd doped Bi_{1.2}Gd_{0.1}Fe_{0.8}O₃, S. K. Pradhan, **J. Das**, P. P. Rout, S. K. Das, S. Samantray, D. K. Mishra, D. R. Sahu, A. K. Pradhan, K. Zhang, V. V. Srinivasu and B. K. Roul, **Journal of Alloys and Compounds** (Elsevier), 509, 6 (2011) 2645–2649.

- [22]. Micro-Raman and XPS studies of pure ZnO ceramics, **J. Das**, S. K. Pradhan, D. R. Sahu, D. K. Mishra, S. N. Sarangi, B. B. Nayak, S. Verma and B. K. Roul, **Physica B** (Elsevier) 405 (2010) 2492–2497
- [23]. Ferromagnetism in ZnO single crystal, D.K. Mishra, P. Kumar, Manoj Kumar Sharma, **J. Das**, S.K. Singh, B.K. Roul, S. Verma, Ratnamala Chatterjee, V.V. Srinivasu and D. Kanjilal, **Physica B** (Elsevier) 405 (2010) 2659–2663
- [24]. Defect driven multiferroicity in Gd doped BiFeO₃ at room temperature, S. K. Pradhan, **J. Das**, P. P. Rout, S. K. Das, D. K. Mishra, D. R. Sahu, A. K. Pradhan, V. V. Srinivasu, B. B. Nayak, S. Verma and B. K. Roul, **Journal of Magnetism and Magnetic Materials** (Elsevier) 322 (2010) 3614–3622
- [25]. Effect of holmium substitution for the improvement of multiferroic properties of BiFeO₃, S. K. Pradhan, **J. Das**, P. P. Rout, V. R. Mohanta, S. K. Das, S. Samantray, D. R. Sahu, J. L. Huang, S. Verma and B. K. Roul, **Journal of Physics and Chemistry of Solids** (Elsevier) 71 (2010) 1557–1564
- [26]. X-Ray Photoelectron Spectra of La_{0.67}Ca_{0.33}MnO₃ Processed by EATPAH Technique, D. K. Mishra, S. Das, S. Samantray, S. K. Pradhan, **J. Das**, S. Verma and B. K. Roul, **AIP proceedings on Mesoscopic, Nanoscopic, and Macroscopic Materials** (IWMNMM-2008), 1063 (2008) 222-229.

National :

- [1]. Ferromagnetism in Rare Earth Co-doped Zinc Manganite system, **J. Das**, S. K. Pradhan, D. R. Sahu, D. K. Mishra, V. V. Srinivasu and B. K. Roul, Orissa journal of Physics 16 (2009) 73-80.
- [2]. A Review Perceives to Kondo Effect and RKKY Theorem, D. K. Mishra, **J. Das**, B. K. Roul and D. Kanjilal, Orissa journal of Physics 16 (2009) 319-326.
- [3]. Unconventional ferromagnetism in a wide band gap semiconductor, **J. Das**, S. K. Pradhan, D. R. Sahu, D. K. Mishra, P. P. Rout and B. K. Roul, Orissa journal of Physics 16 (2009) 281-284.
- [4]. Mn doped ZnO; A Diluted Magnetic Semiconductor, **J. Das**, D.K. Mishra, S. Dash, S. K. Pradhan, S. Samantaray, G. S. Roy and B.K. Roul, Bulletin of Orissa Physical Society 15 (2008) 111-118.

ANY OTHER

Conferences :

- [1]. Preparation of Nanometer sized Mn doped Zn based oxide powder for DMS applications, **J. Das**, S. K. Pradhan, S. Samantray, D. R. Sahu, D. K. Mishra, V. V. Srinivasu and B. K. Roul, International Seminar on Nanotechnology and Functional Materials, Jan-2009, published by Sreenidhi Institute of Science and Technology, Hyderabad.
- [2]. Enhanced Room Temperature Multiferroicity in Gd Doped BFO, S. K. Pradhan, **J. Das**, S. Samantray, D. R. Sahu, A. K. Pradhan, K. Zhang, R. B. Konda, R. Mundle, V. V. Srinivasu and B. K. Roul, International Seminar on

- Nanotechnology and Functional Materials, Jan-2009, published by Sreenidhi Institute of Science and Technology, Hyderabad.
- [3]. B. K. Roul, **J. Das** and D. K. Mishra, CMDAYS 2005, August 2005, 29-31.
- [4]. Low cost novel ultrasonic spray pyrolysis technique for synthesis of high temperature multielemental oxide thin films, **J. Das**, D. K. Mishra, A. Dikhit, S. Verma and B. K. Roul, Versatile and viable route for synthesis of mono and multielemental thin films by spray pyrolysis, CMDAYS 2006, August 2006, 29-31
- [5]. High temperature rare earth based multi-elemental manganite films by Spray pyrolysis, **J. Das**, D. K. Mishra, S. Dash, S. K. Pradhan, S. Verma and B. K. Roul, International Conference on Advanced Materials and Nanocomposites (ICAMC-2007), 24-26 October, 2007.
- [6]. Magnetic properties of bulk polycrystalline and nanocrystalline $Zn_{0.99}Ni_{0.01}O$, D.K.Mishra, J. Mohapatra and **J. Das**, CMDAYS at BIT, MESRA RANCHI during 29-31 August 2012.
- [7]. **Session chair** in 4th BRICS Symposium-2015, UNISA, Johannesburg, RSA
- [8]. **Invited talk** at BIT's 4th World Congress on Advanced materials, WCAM-2015, Chongqing, China, May, 2015
- [9]. **Poster presentation** at ICC-2015, Bikaner, India, October, 2015
- [10]. **Poster presentation** at ICC-2015, Bikaner, India, October, 2015
- [11]. **Oral presentation** at ICSM-2016, Fethiye, Turkey, April, 2016
- [12]. **Oral presentation** at ICNN-2016, Toronto, Canada, June, 2016.
- [13]. **Poster presentation:** on "Electron Spin resonance studies of $Bi_{1-x}Sc_xFeO_3$ nanoparticulates: Observation of an enhanced spin canting over a large temperature range", S. Titus, S. Balakumar, M. Sakar, J. Das and V.V. Srinivasu. (Presented by Ph.D. student S.Titus) got Best poster award at ICMAGMA-17 from 1-3 Feb 2017 at Hyderabad, India.

Journal reviews:

- **NANO,**
- **Journal of Crystal Growth,**
- **Materials Science and Engineering B,**
- **Journal of Alloys and Compounds,**
- **Journal of Electronic Materials,**
- **SN Applied Sciences**
- **Molecular Physics**
- **Applied Physics A**

Student guidance:

Masters - Guided **02** students for completion of Masters as co-supervisor at University of South Africa

Ph. D. - Guided **03** students for completion of Ph.D. as co-supervisor at University of South Africa