CURRICULUM VITAE

Dr. Pankaj Mohanty (Pr. Phys)

Lecturer (Physics)
Department of Physics, Auckland Park Campus
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EDUCATIONAL QUALIFICATION

NAME OF EXAM	NAME OF BOARD/ UNIVERSITY	YEAR OF PASSING	% of MARKS SECURED
*PhD (**Materials Science and Technology/Physics**)*	*Indian Institute of Technology (BHU) Varanasi, India*	2015	------
		2011	8.25 (CGPA)
*MPhil (**Physics**)*	*Utkal University, Orissa, India*	2009	76.25
*MSc (**Physics: Solid State**)*	*North Orissa University, Odisha, India*	2007	76.42 8.18 (CGPA)
*+3 Science (**Physics (Hons.),** Chemistry, Mathematics)*	*M.P.C (A) College, NOU, Odisha, India*	2005	76.7 (with **Distinction**)

Ph.D. Thesis Title: ***Structure, Magnetic and Transport Properties of Nanostructured $Ti_{1-x}Co_xO_{2-\delta}$: Effect of Ion Irradiation (2015)***

SUPERVISORS

Post-Doctoral: Prof. Aletta Prinsloo and Dr. Charles Sheppard

PhD: Prof. Chandana Rath, IIT (BHU), Varanasi, India

MPhil (Dissertation): Prof. Naresh Chandara Mishra, Utkal University, Odisha, India

MSc (Project): Prof. Basudeb Sahu, North Orissa University, Odisha, India

POSITIONS HELD

- **Post-Doctoral Researcher** from 01.10.2018 to 31.03.2019 at SPECTRUM Analytical Centre, Faculty of Science, University of Johannesburg, South Africa with Dr. Willie Oldewage.

- **Post-Doctoral Researcher** from 01.10.2015 to 30.09. 2018 Prof. Aletta Prinsloo and Dr. Charles Sheppard at Department of Physics, University of Johannesburg, South Africa. (Funded by **National Research Foundation**, South Africa and **GES Post-Doctoral Fellowship University of Johannesburg**)
- **Teaching Assistantship/Institute Assistant** from 01.04.2015 to 13.07.2015 at with Prof. Chandana Rath in School of Materials Science and Technology, IIT-BHU.
- **Senior Research Fellow** awarded by Council of Scientific and Industrial Research (**CSIR**), New Delhi, India since 2nd April 2012 to 30th March 2015.
- **Project Fellow** in UGC-DAE CRS Project entitled "**Evolution of Magnetism with Oxygen Deficiency in Cobalt Doped TiO_2 Diluted Magnetic Semiconductor**" with Dr. (Mrs.) Chandana Rath in School of Materials Science and Technology, IT-BHU since 27th July 2009 to 31st March 2012 (PI-**Dr. Chandana Rath**, Co-PI- **Dr. Alok Banerjee,** Scientist-G, UGC-DAE Consortium for Scientific Research, Indore, India).

LIST OF PUBLICATIONS IN INTERNATIONAL JOURNALS

1. "Oxygen vacancy induced structural phase transformation in TiO_2 nanoparticles"; Chandana Rath, **P. Mohanty**, A. C. Pandey , and N. C. Mishra, **J. Phys. D: Appl. Phys. 42 (2009) 205101**
2. "Appearance of superparamagnetic phase below curie temperature in cobalt chromite nanoparticles"; L. Kumar, **P. Mohanty**, T. Shripathi, and Chandana Rath, **Nanoscience and Nanotechnology Letters 1, (2009) 199**
3. "UV-visible studies of nickel oxide thin film grown by thermal oxidation of nickel"**;** **P. Mohanty**, Chandana Rath, P. Mallick, R. Biswal, and N.C. Mishra **Physica B: Condensed Matter, 405 (2010) 2711** (Among **25 Hottest Articles** in Physica B: Condensed Matter from July to September 2010.)
4. "Magnetic Phase Transitions in Cobalt Chromite Nanoparticles"; Chandana Rath and **P. Mohanty**, **Journal of Superconductivity and Novel Magnetism**, **24 (2011) 629**
5. "Magnetic properties of nanoparticles of cobalt chromite"; Chandana Rath, **P. Mohanty** and A. Banerjee, **Journal of Magnetism and Magnetic Materials 323 (2011) 1698**
6. "Effect of oxygen vacancy on magnetic properties of $Ti_{1-x}Co_xO_2$ nanoparticles synthesized by sol-gel route"; **P. Mohanty**, P. Mallick, N. C. Mishra, A. Banerjee, T.

Shripathi, and Chandana Rath, **International Journal of Nanotechnology and Applications**, ISSN 0973-631X Volume 5, Number 4 **(2011),** pp. 383-393

7. "Oxygen vacancy induced phase formation and room temperature ferromagnetism in undoped and Co doped TiO_2 thin films"; **P. Mohanty**, N. C. Mishra, R. J. Choudhary, A. Banerjee, T. Shripathi , N. P. Lalla, S. Annapoorni and Chandana Rath, **J. Phys. D: Appl. Phys.** 45 (2012) 325301.

8. "Room temperature ferromagnetism in $Ti_{1-x}Co_xO_{2-\delta}$ (x=0.015) thin films deposited by pulsed laser deposition technique", **P. Mohanty,** V. Ganesan, Chandana Rath, **Materials Science Forum,** 760 (2013) 1-7.

9. "TiO_2 nanowires grown from nanoparticles: structure and charge density study", **P. Mohanty**, S. Saravanakumar, R. Saravanan, Chandana Rath **Journal of Nanoscience and Nanotechnology**, 13 (2013) 6672.

10. "Evidence of room temperature ferromagnetism in argon/oxygen annealed TiO_2 thin film deposited by e-beam evaporation technique", **P. Mohanty**, D. Kabiraj, R. K. Mandal, P. K. Kulriya, A. S. K. Sinha, Chandana Rath **J Magn. Magn. Mat. 355 (2014) 240.**

11. "Tuning of magnetic transition temperatures in nanoparticles of $CoCr_2O_4$ multiferroic by B-site mixing", D. Kumar, **P. Mohanty**, V. P. Singh, J. Kumar G., A. Banerjee, V. Ganesan and Chandana Rath **Material Research Bulletin 54 (2014) 78.**

12. "Evolution of structural and magnetic properties of Co doped TiO_2 thin films irradiated with 100 MeV Ag^{7+} ions", **P. Mohanty,** V. P. Singh, N. C. Mishra, S. Ojha, D. Kanjilal and Chandana Rath **J. Phys. D: Appl. Phys. 47 (2014) 315001**.

13. "Anomalous Luminescent Properties in ZnO and $SrAl_2O_4$ Composites", V. P. Singh, **P. Mohanty**, S. P. Lochab and Chandana Rath **RSC Advances 4 (2014) 36765.**

14. "Structure and magnetic phase transitions in $Ni_{1-x}Co_xCr_2O_4$ (x = 0.50, 0.75) spinel compound" **P. Mohanty**, C.J. Sheppard, A.R.E. Prinsloo. **J. Magn. Magn. Mater**. **451 (2018) 20-18**

15. "Structural and Magnetic Propertied of $Ni_{1-x}Co_xCr_2O_4$ (x = 0.50, 0.75) nanoparticles" **P. Mohanty**, A.R.E. Prinsloo, B. Doyle, E. Carleschi and C. J. Sheppard **AIP Advances 8**, (2018) 056424.

16. "Effect of Fe Substitution on Structural and Magnetic Properties of $NiCr_2O_4$", **P. Mohanty**, C. J. Sheppard, A.R.E. Prinsloo, W. D. Roos, **Acta Physica Polonica A 133 (2018) 574-577.**

17. "Evolution of NiO Phase at the Expense of Metallic Nickel: Structure and Magnetic Properties" **P. Mohanty** *et al.* Submitted to **Physica B: Condensed Matter**.

18. "Field Induced Magnetic Properties of Ni Doped $CoCr_2O_4$" **P. Mohanty** *et al.* Accepted for publication in **AIP Conference Proceedings 2019**.

SEMINARS/ CONFERANCES

1. **UGC-DRS Seminar on Functional Materials: Future Directions**, March 26-28, 2009. Organized by Utkal University, Vani Vihar, and Bhubaneswar. **(Participation)**
2. **National Conference on Experimental Tools for Materials Science Research: State of Art**, 3 - 4 December 2010. Organized by Department of Physics, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi Sponsored by BRNS Mumbai, CSIR New Delhi, DST New Delhi, Effect of Oxygen Vacancy in Phase Transformation and Magnetic Properties of $Ti_{1-x}Co_xO_2$ (x = 0 to 0.05) nanoparticles, **P. Mohanty** and Chandana Rath **(Awarded Third Prize for Best Poster Presentation)**
3. **National Seminar on Recent Trends in Condensed Matter Physics**, 5-6 March 2011. Organized by Department of Applied Physics, IT-BHU Varanasi, Magnetic Properties of $Ti_{1-x}Co_xO_2$ (x = 0,0.01,0.03) nanoparticles, **P. Mohanty**, A. Banerjee, T. Shripathi and Chandana Rath **(Oral Presentation)**
4. **Conference on Nanostructuring by Ion Beams 2011**. Organized by Nanotechnology Application Center, University of Allahbad and Inter University Accelerator Center, New Delhi.17^{th} -19^{th} October 2011.Structural Evolution of Non-Stoichiometric Titanium Oxide Thin Films by Swift Heavy Ion Irradiation. **P. Mohanty**, V. P. Singh, H. Rath, N. C. Mishra, R. J. Choudhry, P. K. Kulriya, D. K. Avasthi, D. Kanjilal, C. Rath. **(Poster Presentation)**
5. **International Conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC)** 9-12 October 2012. Organized by Inter University Accelerator Center (IUAC), Aruna Asaf Ali Marg, New Delhi. India. "Ion irradiation on non-stoichiometric Co doped TiO_2 Thin Film: Structural and Magnetic Properties" **P. Mohanty**, N. C. Mishra, R. J. Choudhary, Chandana Rath. **(Poster Presentation)**
6. **Conference cum Workshop on Electron Microscopy**, Organized by Department of Metallurgical Engineering, IIT (BHU). "Room Temperature Ferromagnetism: $Ti_{1-x}Co_xO_{2-\delta}$ (x = 0, 0.015) Thin Film grown by Pulsed Laser Deposition" 6-8 December 2012. **P. Mohanty** N. C. Mishra, R. J. Choudhary A.

Banerjee, T. Shripathi, N. P. Lalla and Chandana Rath **(Awarded Third Prize for Best Poster Presentation)**

7. **National Conference on Condensed Matter Days 2013,** Organized by NIT Rourkela, "Structural and Magnetic Properties of 100 MeV Ag^{+7} Ion Irradiated Co Doped TiO_2 Thin Films " **P. Mohanty**, N. C. Mishra, D. K. Avasthi, D. Kanjilal and Chandana Rath, 29th Aug 2013 to 31st Aug 2013. (**Oral Presentation**)
8. **IUMRS ICA 2013,** organized by IISc. Bangalore during December 16 to 20, 2013, "Effect of Oxygen Partial Pressure and Swift Heavy Ion Irradiation on Properties of Undoped and Co doped TiO_2 Thin Films" **P. Mohanty**, N. C. Mishra, R. J. Choudhary and Chandana Rath (**Poster Presentation**)
9. **International Conference on Swift Heavy Ions in Materials Engineering and Characterization (SHIMEC)** 14-17 October 2014. Organized by Inter University Accelerator Center (IUAC), Aruna Asaf Ali Marg, New Delhi. India. "Evolution of Transport and Magnetic Behaviour in Epitaxial $Ti_{1-x}Co_xO_{2-\delta}$ Thin Films under Swift Heavy Ion Irradiation" **P. Mohanty**, N. C. Mishra, R. J. Choudhary, R. Rawat and Chandana Rath. **(Best Poster Presentation Award)**
10. Presented a seminar titled "*Structure, Magnetic and Transport Properties of Nanostructured $Ti_{1-x}Co_xO_{2-\delta}$: Effect of Ion Irradiation*" on 4th march, 2016 at **Physics Department, C1 LAB 120, APK Campus University of Johannesburg**, South Africa.
11. **Effect of calcination on structural and magnetic properties of nickel chromite** **P. Mohanty**, C.J. Sheppard, A.R.E. Prinsloo, **The 61st Annual Conference of the South African Institute of Physics**, organized by The Departments of Astronomy and Physics, University of Cape Town, 4-8 July, 2016. (**Oral Presentation**)
12. Effect of A/B site substitution on the magnetic properties of nickel chromite, **P. Mohanty**, C.J. Sheppard, A.R.E. Prinsloo, **8th Joint European Magnetic Symposia** (JEMS 2016), 21-26 August 2016, Glasgow UK. (Poster Presentation)
13. "Structural and magnetic properties of nickel chromite", **P. Mohanty**, C.J. Sheppard, A.R.E. Prinsloo, Annual Science Day Celebrations 2016 and CRS Users Research Scholars Workshop Physics of Advanced Materials III, December 19-20, UGC-DAE Consortium for Scientific Research, Indore, India (**Best Presentation Award - Oral**)
14. "Effect of A/B site substitution on the magnetic properties of nickel chromite" **P. Mohanty**, C.J. Sheppard, A.R.E. Prinsloo, W.D. Roos, The European Conference Physics of Magnetism 2017 (PM'17), June 26-30, 2017, Poster Presentation.
15. "Structural and magnetic properties of $(Co_{1-x}Ni_x)Cr_2O_4$(x=0.5,0.25) nanoparticles" **P. Mohanty**, A.R.E. Prinsloo, B. Doyle, E. Carleschi and C. J.

Sheppard 62nd Annual Conference on Magnetism and Magnetic Materials, USA. Poster Presentation. Nov 6-10, 2017.

16. "Effect of Cationic Substitution on Structure and Magnetism in Chromites", **P. Mohanty**, Department of Physics, University of Johannesburg, 3 August, 2018.
17. "Role of Swift Heavy Ion Irradiation on Magnetism and Electronic Transport Behaviour of Epitaxial $Ti_{1-x}Co_xO_{2-\delta}$ Thin Films" **P. Mohanty** *et al.* Joint ICTP-IAEA Advanced School on Ion Driven Materials Engineering: Accelerators for a New Technology Era, 1-5 October, 2018, ICTP, Trieste, Italy (**Best Poster Presentation Award**)
18. "Cationic Site Substitution Effect on Magnetic Properties of $(Ni_{0.5}Co_{0.5})(Cr_{0.75}Fe_{0.25})_2O_4$ Nanoparticles" **P. Mohanty** *et al.* NANOSMAT-AFRICA 2018 International Conference on Surfaces, Coatings and Nanostructured Materials 19 to 23 November 2018 , Cape Town , South Africa. (Best Poster Presentation Award)
19. "Magnetic Phase Transitions in $(Co_{0.75}Ni_{0.25})Cr_2O_4$ Thin Film Grown by Pulsed Laser Deposition", **P. Mohanty** *et al.* NANOSMAT-AFRICA 2018 International Conference on Surfaces, Coatings and Nanostructured Materials 19 to 23 November 2018, Cape Town , South Africa (**Oral Presentation**).
20. "Neutron Diffraction Studies on Cobalt Substituted Nickel Chromite Nanoparticles" **P. Mohanty** *et al.* NANOSMAT-AFRICA 2018 International Conference on Surfaces, Coatings and Nanostructured Materials 19 to 23 November 2018, Cape Town, South Africa (**Poster Presentation**).
21. "Evolution of NiO Phase at the Expense of Metallic Nickel: Structure and Magnetic Properties" **P. Mohanty** *et al.* **International Conference on Magnetic Materials and Applications** (ICMAGMA 2018), 9-13 December 2018 NISER, Bhubaneswar, India. (Oral Presentation)
22. "Field Induced Magnetic Properties of Ni Doped $CoCr_2O_4$" **P. Mohanty** *et al.* 63rd DAE Solid State Symposium December 18-22, 2018 Guru Jambheshwar University of Science and Technology, Hisar, Haryana, India (**Poster Presentation**)

AWARDS

1. Best Poster Presentation Award: **3** International, **2** National
2. Best Oral Presentation: **1** National

SCHOOL/ WORKSHOP ATTENDED

1. Workshop on Understanding Universe, organized by Department of Physics, Utkal University, Vani Vihar, Bhubaneswar, sponsored by IUCAA Pune, January 8 - 10, 2007.
2. LaTeX Training Programme organized by D.S.T.– Centre for Interdisciplinary Mathematical Sciences (CIMS), Banaras Hindu University, Varanasi- 221005, February 13 - 18, 2012.

3. "School on Synchrotron Radiation and Free Electron Lasers and Their Multi Disciplinary Applications", ICTP, Trieste, Italy, 19 -30 March, 2012.
4. Workshop on "Smart Materials and Thin Films" organized by Dept. of Physics, NIT Rourkela on 28th August 2013.
5. "Joint ICTP-IAEA Advanced School on Ion Beam Driven Materials Engineering: Accelerators for a New Technology Era" To be held at 1 October 2018 to 5 October 2018 at ICTP, Trieste Italy.

MEMBERSHIPS IN SCIENTIFIC BODIES

1. Professional Physicist and Member of **South African Institute of Physics** (SAIP)

   Membership Number: **2018117**

2. Life member of **Indian Physics Association.** Membership No. VAR/LM/12946

VISITS ABROAD

1. Conducted (EXAFS) Experiments at Elettra, Synchrotron Radiation Facility, Bassovizza, Trieste, Italy, Trieste, **Italy**, 27th May to 2nd June 2011, (under ICTP Elettra User's Program)
2. International Centre for Theoretical Physics ICTP, Trieste, **Italy**, 19th March to 24th March 2012.
3. Department of Physics, University of Johannesburg, **South Africa** 01st October 2015 to present (Joined as a PDRF)
4. Conducted (EXAFS) Experiments at Elettra, Synchrotron Radiation Facility, Bassovizza, Trieste, **Italy**, 18-22 November 2016.
5. International Centre for Theoretical Physics ICTP, Trieste, Italy to participate in ICTP-IAEA Advanced School on Ion Driven Materials Engineering: Accelerators for a New Technology Era, 1-5 October, 2018.

SCHOLARSHIPS/EXTRA CURRICULAR ACTIVITIES/EXPERIENCE

- ***h*-index-8: i10index:8** One paper having Citation **159 Total citations 339 (Google Scholar date: 11 April 2019)**
- **Global Excellence and Stature (GES) Post-Doctoral Fellowship**, University of Johannesburg, South Africa (From October 2017)
- **Post-Doctoral Fellowship** at University of Johannesburg, South Africa (October 2015 to September 2017: Funded by NRF and University of Johannesburg)
- **Senior Research Fellowship** (CSIR, INDIA, 1st April-2012-March 2015)
- **Project Fellowship** (UGC-DAE CRS Project 27th July 2009-31st March 2012)
- **National Merit Scholarship** in Post Graduation.
- Dr. Radhanath Rath Scholarship in Post Graduation
- **National Merit Scholarship** in +2 Science.
- Member, Students Advisory Committee, North Orissa University (Year 2006-07)
- Secretary, Physics Seminar, Department of Physics, North Orissa University (2006-07)
- **Assistant Teacher** at *Shri Sathya Sai Vidya Vihar*, Baripada, Orissa, India from 1/08/2007 to 23/02/2008.