

# Prakash Parida

## Curriculum Vitae

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### Accademic background

**Assistant Professor**, in Central University of Punjab, Bathinda from 2016.

**Postdoctoral fellow**, in the group of Prof. John Schliemann, Department of Physics, University of Regensburg, Germany during the period 2012-2016.

**PhD**, Title: "Electronic Structure and Transport Properties in some Low-dimensional systems: Quantum Many-body and ab-initio studies", Supervisor: Professor Swapan K. Pati, Theoretical Sciences Unit, Jawaharlal Nehru Center For Advanced Scientific Research (JNCASR), Bangalore in 2012.

**Master of Science (Physics)**, Specialization: Solid State Physics, Division: First, Utkal University, Bhubaneswar.

**Bachelor of Science**, Subject: Physics(Hons), Chemistry(Pass), Mathematics (Pass), Division: First class with distinction, Utkal University, Bhubaneswar.

**Higher Secondary (Science)**, Subject: Physics, Chemistry, Mathematics, Statistics, Division: First, CHSE, Orissa.

**10th**, Subject: Oriya, English, Sanskrit, Mathematics, Science, History, Geography, Division: First, BSE, Orissa.

### Awards/Scholarships/Fellowships/Achievements

- 2012: Postdoctoral fellowship, University of Regensburg
- 2010: IUSSTF (Indo-US Science and Technology Forum) award to visit Northwestern University, USA for 3 months
- 2010: Best Poster Award, Winter School on Chemistry and Physics Materials, Cambridge Univ, ICMS, JNCASR, Bangalore
- 2009: A fellowship under the framework of Indo-Italy joint collaborative project to visit University of Prama, Italy, for 1 month
- 2008: Best Poster award, International conference on "Molecules and Materials: New Directions", JNCASR, Bangalore
- 2007: Joint Entrance Screening Test (JEST), Percentile:98.18, All India Rank: 74
- 2007: Qualified CSIR NET (JRF)

## Theoretical models, methods, packages and graphical softwares

- I am quite confident on tight-binding, Hubbard (many-body and mean-field), Heisenberg and Ising models. Although I have rigorously used exact diagonalization method, still have some numerical knowledge on DMRG.
- I am also skillful to handle many DFT - based packages to solve electronic structures and transport properties: SIESTA, Gaussian (g03/g09), VASP, Quantum Espresso, Crystal06, ADF, TranSIESTA, SMEAGOL.
- I also have done ab-initio molecular dynamics (MD) simulations to study the effect of finite temperature in collaboration with Prof. Swapan K Pati.
- I also have experience of using MATLAB and MATHEMATICA to solve simple numerical problems.
- I use (fully and partly) many graphical softwares: XCrysDen, Gaussview, Molden, Mercury, Xmgrace, GNUPlot, Xd3D, VMD and etc.

## Publications

1. "Negative differential resistance in nanoscale transport in the Coulomb blockade regime", P. Parida, S. Lakshmi and S. K Pati, **J. Phys.: Cond. Matt.** **21**, 095301 (2009), impact factor:2.34
2. "Organometallic vanadium-borazine systems: efficient one-dimensional half-metallic spin filters", S. S. Mallajosyula, P. Parida and S. K. Pati, **J. Mater. Chem.** **19**, 1761 (2009), impact factor:6.6
3. "The Electronic and Magnetic Properties of a Few Transition-Metal Clusters", P. Parida, A. Kundu and S. K Pati, **J. Cluster Sci.** **20**, 355 (2009), impact factor:1.36
4. "Organometallic vanadium-anthracene and its BN analogue: efficient one dimensional half-metallic spin filter", P. Parida, A. Kundu and S. K. Pati, **Phys. Chem. Chem. Phys.** **12**, 6924 (2010), impact factor:4.49
5. "Electronic and magnetic properties of BNC nanoribbons: a detailed computational study", E. A. Basheer, P. Parida and S. K. Pati, **New J. Phys.** **13**, 053008 (2011), impact factor:3.55
6. "Negative Differential Conductance in Nano-junctions: A Current Constraint Approach", P. Parida, S. K. Pati and A. Painelli, **Phys. Rev. B** **83**, 165404 (2011), impact factor:3.73
7. "Electronic, Magnetic and Transport Properties of  $Fe_n$ -bis(n-acene) and  $Fe_n$ -bis(n-BNacene)[ $n=1,2,\infty$ ]: A Theoretical Study", D. Ghosh, P. Parida and S. K. Pati, **J. Phys. Chem. C** **116**, 18487 (2012), impact factor:4.7
8. "Cyclopentadienyl-Benzene Based Sandwich Molecular Wires Showing Efficient Spin Filtering, Negative Differential Resistance, and Pressure Induced Electronic Transitions", P. Parida, E. A. Basheer and S. K. Pati, **J. Mater. Chem.** **22**, 14916 (2012), impact factor:6.6
9. "Line Defects at the Heterojunction of Hybrid Boron Nitride/Graphene Nanoribbons", D. Ghosh, P. Parida and S. K Pati, **J. Mater. Chem. C** **2**, 392 (2014), impact factor:4.69
10. "Insertion of Line Defect in Nanoribbons of Graphene, Boron Nitride and Hybrid of them: An AIMD study", D. Ghosh, P. Parida and S. K Pati, **J. Phys. Chem. C** **118**, 14670 (2014), impact

factor:4.7

11. "Spin Crossover Molecule based Thermoelectric Junction", D. Ghosh, P. Parida and S. K Pati **Appl. Phys. Lett.** **106**, 193105 (2015), impact factor:3.5
12. "Stable Line Defects in Silicene", D. Ghosh, P. Parida and S. K. Pati, **Phys. Rev. B** **92**, 195136 (2015), impact factor:3.7
13. " Spin-state Switching of Manganese Porphyrin by Conformational Modification", D. Ghosh, P. Parida and S. K. Pati, **J. Phys. Chem. C** **120**, 3625 (2016), impact factor: 4.7
14. "Interacting electrons in graphene: Fermi velocity renormalization and optical response ", T. Stauber, P. Parida, M. Trushin, M. V. Ulybyshev, D. L. Boyda, and J. Schliemann, **Phys. Rev. Lett.**, accepted (2017), impact factor: 7.6