

Curriculum Vitae

Name: PRABUDDHA SANYAL

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Date of birth: 14th July, 1976

Gender: Male

Marital Status: Single

Nationality: Indian

Branch of specialization	Name of institute/ university/ board	Year of passing	% Marks obtained	Subjects taken
Ph.D.	Indian Institute of Science, Bangalore	2007	NA	Theoretical solid state physics
M.S.	Indian Institute of Science, Bangalore	2000	85% (CGPA: 6.8 out of 8.0)	Special: Condensed matter physics, Statistical mechanics.
B.Sc.	Presidency College, Kolkata	1997	67% (1 st class)	Physics Honours
Higher Secondary	South Point High School, Kolkata	1994	81.9% (1 st division with star)	Physics, Chemistry, Mathematics, Biology
Secondary	Nava Nalanda High School	1992	87.7% (1 st division with star)	Science subjects, Additional: Mathematics

Thesis Title:

Theoretical study of some transport and spectroscopic properties in two materials showing large magnetoresistance.

Skills:

- 1) Programming in Fortran 77, Fortran 90, C, C++.
- 2) Numerical computation using Matlab and symbolic computation using Mathematica, Maple.
- 3) Plotting data in Gnuplot, Octave, Xmgrace, Microcal Origin.
- 4) Using numerical library routines like Lapack, Quadpack; vendors: DXML, IMSL, ESSL.

- 5) Knowledge of numerical algorithms at the level of Numerical Recipes in Fortran.

- 6) Working knowledge of Linux, Unix, DOS, Windows.

- 7) Monte Carlo simulations; also Exact-Diagonalization coupled with Monte Carlo (ED+MC)

- 8) Preparing documents using Tex/Latex.

- 9) Using finite difference time domain (FDTD) methods.

- 10) Using VASP (Vienna Abinitio Simulation Package) and LMTO (Linear Muffin Tin Orbital) for electronic structure calculation and structure optimization.

- 11) Using LDA-DMFT code for strongly correlated materials.

Postdoctoral Research Experience :

6 months at Technische Universitat, Vienna (December 2012-May 2013) for post-doctoral fellowship.

2 years (March 2007-2009) at Harishchandra Research Institute (HRI), Department of Atomic Energy, Allahabad.

3 months (April 2009-June 2009) fulltime at SN Bose National Center for Basic Sciences, Kolkata (Swarnajayanti fellowship).

9 months (July 2009-March 2010) part-time at SN Bose National Center for Basic Sciences, Kolkata.

Awards/ Fellowships:

2003-2004: Senior Research Fellowship (SRF), Council of Scientific and Industrial Research (CSIR), India.

2000-2003: Junior Research Fellowship (JRF), CSIR, India upon qualifying National Eligibility Test (NET).

1995 : Jagadish Bose National Talent Search (**JBNSTS**) award.

Teaching Experience:

1) Assistant Professor at IIT Roorkee from May 2013 till present.

2) Assistant Professor at VIT University, from Feb 2012-31st June, 2012.

3) Lecturer in Hyderabad University from April 2010 to August 2011.

4) Assistant Professor in Physics at Moulana Azad College, Kolkata from July 2009 to March 2010.

5) Teaching Assistant in Quantum Mechanics I (1999) and Advanced Condensed Matter (2003) courses at the Indian Institute of Science, Bangalore.

Conference/Workshops Attended:

June 2003: ' Summer College and Conference on the Physics and Chemistry of doped Rare-Earth Manganites' held at the Abdus Salam International Center for Theoretical Physics, Trieste, Italy. Poster presented on 'Electron localization due to intrinsic disorder in doped CMR Manganites'.

Feb-2007: Indo-Japan conference on Giant Magnetoresistance Materials (GMR) held at the Indian Institute of Sciences, Bangalore. Poster presented on 'Novel magnetoresistance in a magnetic tunnel junction: application to powdered $\text{Sr}_2\text{FeMoO}_6$ '.

Feb 2008: Indo Japan conference on Complex Oxides and Multiferroics held at the Indian Association for Cultivation of Science (IACS) Kolkata. Poster presented on 'Models for antisite disorder and magnetism in double perovskites'.

Feb-March 2009: International conference on Strongly Correlated Materials at Indian Association for Cultivation of Science (IACS), and SN Bose National Center for Basic Sciences, Kolkata. Poster presented on 'A magnetic model for double perovskites'.

11-14Nov 2009: MSM09 meeting: Magnetism, Superconductivity and Phase Transitions in novel and complex materials, Fortune Park Panchabati, Kolkata.

1st Sept-5th Sept, 2013 : Workshop on "Dynamical Vertex Approximation" at TU, Vienna. Talk presented on "Study of Anderson localization in the Falicov Kimball model with the dynamical vertex approximation"

List of research publications:

1) **Title:** Intergranular Magnetoresistance in $\text{Sr}_{2}\text{FeMoO}_{6}$ from a Magnetic Tunnel Barrier Mechanism across Grain Boundaries.

Author: D.D. Sarma, Sugata Ray, K. Tanaka, M. Kobayashi, A. Fujimori, P. Sanyal, H.R. Krishnamurthy and C. Dasgupta.

Journal: Physical Review Letters, **98**, 157205 (2007)

Citations: 66

2) **Title:** Unusual doping and temperature dependence of photoemission spectra from manganites.

Author: P. Sanyal, S. Sen Gupta, N. Pakhira, H.R. Krishnamurthy, D.D. Sarma and

T.V. Ramakrishnan

Journal : Europhysics Letters, **82**, 47010 (2008)

3) **Title:** Studies on chemical ordering and antisite defect formation in double perovskites.

Author: P. Sanyal, S. Tarat and P. Majumdar

E-print archive: lanl.arXiv.org (cond-mat)
arXiv: 0804.1681

Journal : European Physical Journal B **65** , 39 (2008)

4) **Title:** A Magnetic Model for Double perovskites

Author: P. Sanyal and P. Majumdar

E-print archive: lanl.arXiv.org (cond-mat)
arXiv: 0812.1182

Journal : Physical Review B, **80**, 054411, 2009

Citations : 17

5) **Title:** Order-disorder transitions in double perovskites

Author: P. Sanyal S. Tarat and P. Majumdar

Journal: Indian J. Phys. **84** (10), 1375 (2010).

6) Title: Evidence of kinetic energy-driven antiferromagnetism in double perovskites: a first principles study

Author : P. Sanyal, H.Das and T. Saha-Dasgupta

Journal : Phys. Rev. B, **80**, 224412, (2009).

Citations: 22

7) **Title:** Origin of magnetoresistance in powdered $\text{Sr}_2\text{FeMoO}_6$

Author: Srimanta Middey, Somnath Bhattacharya, Alok Banerjee, P. Sanyal, Sugata Ray and D.D. Sarma

Journal : Eur. Phys. Lett., **94**, 4, 47007 (2011)

8) **Title:** Origin of Magnetism and trend in T_c in Cr-based double perovskites: Interplay of two driving mechanisms

Author : Hena Das, Prabuddha Sanyal, T. Saha Dasgupta and D.D. Sarma

Journal : Phys. Rev. B, **83**, 104418 (2011).

Citations : 15

9) **Title:** Understanding neutron scattering data in YMn_2O_5 : An effective spin Hamiltonian

Author: S. Baidya, P. Sanyal, H. Das, B. Roessli, T. Chatterjee, T. Saha Dasgupta

Journal : Phys. Rev. B, **84**, 054444 (2011)

10) Title: Novel effects of localization due to intrinsic disorder in the two-fluid model of manganites

Author: P. Sanyal, V.B. Shenoy, H.R. Krishnamurthy and T.V. Ramakrishnan

Eprint-archive: condmat/1101.1370

Journal : European Physical Journal B, **81**, 393-398
(2011)

11) Title: Signature of an antiferromagnetic metallic ground state in heavily electron doped $\text{Sr}_2\text{FeMoO}_6$

Author: Somnath Jana, Carlo Meneghini, Prabuddha Sanyal, Soumyajit Sarkar, Tanusri Saha-Dasgupta, Olof Karis, Sugata Ray

Journal : Physical Review B, **86**, 054433 (2012)

12) Title: Understanding ferromagnetism in Cr-based 3d-5d double perovskites

Author: Prabuddha Sanyal

Journal : Physical review B, **89**, 115129 (2014) .

13) Title: LDA-DMFT study of half-metallic double perovskite $\text{Sr}_2\text{FeMoO}_6$ in the ferromagnetic phase

Author: Prabuddha Sanyal, Markus Wallerberger and Karsten Held

Journal : *Manuscript in preparation*

Book Chapter: The last chapter of my thesis has been published in the book *50 years of Anderson Localization*, World Scientific, in the chapter Intrinsic Localization in Manganites.