Arabinda Nayak

Curriculum Vitæ (October 25, 2016)

Address

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APPOINTMENTS

Dean of Faculty of Natural and Mathematical Sciences 2016-
Presidency University, Kolkata

Professor of Physics 2016-
Presidency University, Kolkata

Associate Professor of Physics 2009-2016
Presidency College, Kolkata (2009-2010)
Presidency University, Kolkata (2010-2016)

Reader in Physics 2006-2009
Presidency College, Kolkata

Lecturer (Sr. Scale) in Physics 2002-2006
Presidency College, Kolkata

Lecturer in Physics 1997-2002
Darjeeling Govt. College, Darjeeling

Lecturer in Physics 1996-1997
North Regional Institute of Science & Technology, Nirjuli, AP

Postdoctoral Fellow (RA, CSIR) 1993-1996
Material Science Center, IIT Kharagpur
Research on the preparation and characterization of Diamond and Diamond-Like-Carbon (DLC) Films

EDUCATION

PhD Materials Science 1988-1993
Materials Science Center, IIT, Kharagpur
"Studies on Structural, Electrical and Optical Properties of Electron Beam Deposited Zn3P2-Cd3P2 Thin Films"
Thesis advisors: Professor D.R. Rao and Professor H.D. Banerjee

MSc Physics (5-year Integrated) 1982-1987
Department of Physics, IIT, Kharagpur

NATIONAL ELIGIBILITY TEST STATUS

- Joint CSIR - UGC NET (1988)
- GATE (1988)

SOCIETY MEMBERSHIP

- Life member, Indian Association for the Cultivation of Science, Kolkata
- Life Member, Materials Research Society of India (MRSI)

FIELD OF SPECILZATION

- Experimental Condensed Matter Physics & Materials Science

MAJOR RESEARCH INTEREST

- Synthesis and Evaluation of Thin Films
- Development of Ge and ZnO-based nanomaterials
- Diamond & Diamond-Like-Carbon Films
- Polymer-Inorganic Hybrid nanocomposites
- Development of Zinc-Tin-Phosphide based chalcopyrites thin films for solar cell application
- Multi-junction Solar Cells

MY RESEARCH LABORATORY

- I have set up one Solid State and Materials Science research laboratory for the deposition and evaluation of ultra fine (down to 5 nm) germanium (Ge) particles, ZnO nanocrystals, thin film and crystalline compound semiconductors and conducting polymer-inorganic hybrid nanocomposites for device applications. The equipped with an Ionized Cluster Beam (ICB) deposition system for the growth of Ge nanoparticles (funded by DST, Govt. of India). Recently, one Bridgman growth apparatus has been installed for the growth of ZnSnP2 single crystal (funded by UGC).
- An experimental set up for the measurement of ac conductivity and dielectric response for the nanocomposite materials at elevated temperatures has also been designed by me and fabricated under the FRPDF grant provided by the Presidency University.
- The laboratory also equipped with supporting instruments for material preparation such as Centrifuge (up to 5000 rpm), Spin Coating system, UV light source (200 W), magnetic stirrer with hot plate etc. (purchased from FRPDF grant).

SUPERVISING OF RESEARCH SCHOLARS FOR Ph.D DEGREE

1. Tamaghna Maitra (NET, UGC). Research Proposal: Metalorganic Vapor Phase Epitaxial (MOVPE) growth of Ge/$In_xGa_{1-x}P$ multi quantum wells
2. Sukhendu Mukherjee (NET, UGC Project). Research Proposal: Development, Synthesis and Characterization of $ZnSnP_2$ Chalcopyrite Thin Film for Photovoltaic Devices
3. Banasree Sadhukhan (Part time). Research Proposal: Optical conductivity and dielectric function of NiPt alloy systems.

SUPERVISION OF JRF/SRF

- Ipsita Halder (SRF, CSIR, 2015-2015). Research: Dielectric, ac conductivity relaxation and magnetoresistive behaviors of $BaTiO_3$-ppy nanocomposites

  Research Finding: Nano crystalline $BaTiO_3$ and polypyrrole (ppy)-$BaTiO_3$ hybrid nanocomposites have been synthesized using chemical oxidative polymerization method. Microstructure and crystallinity of the hybrids are studied using field emission scanning electron microscope (FE-SEM), high resolution transmission electron microscope (HRTEM) and X-ray diffraction (XRD) technique. As prepared $BaTiO_3$ are rod-like, while PPY-$BaTiO_3$ nanocomposites indicate the formation of bulging agglomerates of spherical particles with various sizes (40-50 nm). Dielectric constants at room temperature of the composites have largely enhanced (up to 6000). The hybrid composite shows grain boundary relaxation in the frequency range (42 Hz-5 MHz). Three dimensional (3D) variable range hopping (VRH) with high localization of charge carriers (Mott temperature ≈ 8725658 K) is observed in the temperature dependent conductivity evaluation of composite system. Negative magnetorestance (MR ≈ 4.3%) has been measured at 1 T. The observed MR is explained with the help of forward interference model.

MAJOR RESEARH PROJECT (COMPLETED)

- Development of Tetragonal Ge-nanocrystals by Ionized Cluster Beam Deposition Technique: A New Light Emitting Materials for Future Optoelectronic.

  Sponsoring Authority: DST, Govt. of India. D. D. No. SR/ S2/ CMP - 53/ 2003.

  Amount: 24 Lakh. Duration: 11/10/2006 to 10/10/2009.

  Research Finding: We have successfully deposited Ge-NCs on Si (100) and quartz substrates by ICB deposition technique developed in our laboratory. Ge nanocrystals mostly with

tetragonal phase were obtained when grown using neutral cluster. A composite phase containing both tetragonal and high percentage of diamond cubic structure of Ge-NCs could be grown when the clusters were ionized and subsequently accelerated with potential greater than 1.50 kV. HRTEM techniques were used to study the microstructure of the crystallites. Optical band gap of the Ge-films were in the range 1.55 eV-1.60 eV. The UV light illumination has a pronounced effect on the optical spectra of the non-cubic Ge-NCs.

Germanium nanocrystals embedded between amorphous Al2O3 layers deposited by ICB deposition technique exhibited distinct microcrystalline structures with progressively lowering of disorder with thermal treatment. Such NCs are promising for the non-volatile memory devices.

- Polymer-Inorganic Hybrid Nanocomposites - Preparation, Characterization and their Potential as Nanodielectrics.

  Sponsoring Authority: CSIR, New Delhi. Sanction No: CSIR-01(2342)/09/EMR-II.
  Amount: 13.68 Lakh. Duration: from 01.11.2009 to 31.10.2013. (In collaboration with Department of Chemistry).

  Research Finding: A nanocomposite of PNVC and nano-dimensional Fe_3O_4 (PNVC-Fe_3O_4) was prepared by insitu solid state polymerization of N-vinylcarbazole by Fe_3O_4 at 65^oC. PPY encapsulated PNVC-Fe_3O_4 nanocomposite was synthesized via polymerization of PY in an aqueous suspension of PNVC-Fe_3O_4 composite in presence of KPS. The formations of PNVC and of PPY in the PPY-(PNVC-Fe_3O_4) system were confirmed by FTIR analysis. TGA and DTA analyses showed the thermal stability trend as Fe_3O_4 > PNVC-Fe_3O_4> PPY-(PNVC-Fe_3O_4)> PNVC. HRTEM studies revealed that the PPY-(PNVC-Fe_3O_4) nanoparticles have an average grain size of 37 nm with the Fe_3O_4 nanoparticles fairly well-dispersed in the composite matrix. The SEM study showed a spherical morphology of PPY-(PNVC-Fe_3O_4) particles. XRD studies also confirmed the particle size to be 37 nm. The dielectric constants of PNVC-Fe_3O_4 and the PPY-Fe_3O_4 systems (110-400) were improved relative to the base polymers. In contrast, the PPY encapsulated PNVC-Fe_3O_4 nanocomposites showed significantly higher values of dielectric constant (>1000). The interfaces between polymer and oxide layers play crucial roles for enhancing dielectric properties of the system. The ac conductivity was found to be independent of frequency in the range 10^2 to 10^3 Hz for all the nanocomposites and rise thereafter appreciably in the frequency range of 1 kHz to 25 kHz.

MAJOR RESEARH PROJECT (ON GOING)

- Development, Synthesis and Characterization of $ZnSnP_2$ Chalcopyrite Thin Film for Photovoltaic Devices.

  Sponsoring Authority: UGC, New Delhi. Sanction No.MRP-MAJOR-MATE-2013-16190.

  Amount: 11.91 Lakh. Duration: from 15.12.2015 to 14.12.2018.

OTHER COLLABORATIVE RESEARCH PROJECTS (ON GOING)

- Metalorganic Vapor Phase Epitaxial (MOVPE) growth of $Al_{0.3}Ga_{0.7}As$/GaAs multi quantum wells (MQW) (in collaboration with Dr. S. Bhunia, Surface Physics & Materials Science Division, SINP, Kolkata)

  Proposal: Nowadays the use of "quantum devices" based on compound semiconductors has caused a great impact on our daily life. Very high end conceptual devices based on quantum wells such as quantum cascade lasers (QCL), vertical cavity surface emitting lasers (VCSEL), quantum well infrared photodetectors (QWIP), resonant tunneling diodes (RTD) etc have been demonstrated. The quantum wells employed in such devices need to be of high quality, and precisely controlled thickness. High quality refers to smooth interfaces, few non-intentional incorporated impurities and high photoluminescence efficiency. Such high quality QWs are also important in realizing two-dimensional electron gases and studying physical phenomena associated with them. In this project work, we will study MOVPE growth of GaAs/$Al_{1-x}Ga_xAs$ QWs and study the effect of interface roughness on their optical emission properties.

- Temperature dependent dielectric properties and ac conductivity relaxation in $NiO.V_2O_5$ - PEDOT nanocomposites (in collaboration with Dr. U.C. Ghosh, Former Associate Professor, Department of Chemistry, Presidency University).

  Proposal: Triclinic nickel vanadium mixed oxide ($NiO.V_2O_5$) with particle size 80-120 nm will be synthesized via combined sol-gel-incineration method. This mixed oxide will be reinforced into the polyethylene dioxythiophene (PEDOT) matrix and characterized using x-ray diffraction (XRD), high resolution transmission electron microscopy (HRTEM), Fourier transform infrared spectroscopy (FTIR) and temperature dependent dielectric constant and ac conductivity measurements. The roll of thermally activated polarons with different activation energies on the electrical conduction in the PEDOT – $NiO.V_2O_5$ nanocomposite will be investigated.

- Preparation, characterization and dielectric, ac conductivity with electrochemical behavior of strontium zirconate (in collaboration with Dr. U. C. Ghosh, Former Associate Professor, Department of Chemistry, Presidency University).
- Microstructural, electrical relaxation and magnetic characteristics of $GdFeO_3$-$SmFeO_3$ mixed improper multiferroic materials (for MSc project)

UNDERGRADUATE & POST GRADUATE PROJECTS SUPERVISED

1. Growth, Structural and Electrical Characterization of Zinc Tin Phosphide Thin Films for Solar Cell Applications (Kiyafa Sultana, MSc, 2013).
2. Growth and Optical Characterization of Zinc Tin Phosphide Thin Films for Solar Cell Applications (Santanu Adikary, MSc, 2013).
3. Synthesis and microstructural Behaviour of Doped Bismuth Titanate ($Bi_4Ti_3O_{12}$) as Nano Multiferroic Materials (Arinda Ghosh, MSc, 2014).
4. Magnetic and Electrical Characterization of Doped Bismuth Titanate ($Bi_4Ti_3O_{12}$) Nano Multiferroic Materials (Sourav Kumar Maji, MSc, 2014).
5. ZnO-Nanorods based Dye Sensitized Solar Cells: Preparation and Implementation (Sucharita Saha, MSc, 2015).
6. Metal Organic Vapour Phase Epitaxial Growth of $(Al_yGa_{1-y})_zIn_{1-z}P/(Al_xGa_{1-x})_zIn_{1-z}P$ Quantum Wells and Study the Effect of Interface Roughness and Alloy Disorder on its Light Emission Properties (Chandralina Patra, MSc, 2015).
7. X-ray reflectivity analysis of semiconductor multilayer: structural and morphological characterization (Kaustav Dutta, MSc, 2016).
8. Solving Poisson Equation using FFT: Numerical Solutions of Electrostatic Potentials (Swadhiti Majhi, BSc, 2016).
9. Study of Equilibrium State of Matter using Molecular Dynamics and Calculation of Thermal Conductivity (Kanaya Malakar, BSc, 2016).

NOW TEACHING (UNDER GRADUATE & POST GRADUATE)

- PHYS0191: Mathematical Methods-1 (UG, Odd Semester)
- PHYS0401: Mathematical Methods-2 (UG, Even Semester)
- PHYS0301: Electromagnetism 1 (UG, Odd Semester)
- PHYS0491: Physics Laboratory-3 (UG, Even Semester)
- PHYS0803: Solid State Physics 2 (PG, Even Semester)
- PHYS0902: Condensed Matter Physics-2 (PG, Odd Semester)
- PHYS0904: Physics of Nanostructured Materials (PG, Odd Semester)
- PHYS0992: MSc Advanced Laboratory (PG, Odd Semester)

I try to teach all the courses methodically and coherently so as to make the contents enjoyable and acceptable to all students.

PEER-REVIEWED JOURNAL PAPERS

1. **Nayak, A.,** Rao, D.R., and Banerjee, H.D. (1991) Optical Studies on Electron Beam Deposited Zn_3P_2 Thin Films. *J.Mater.Sci.Lett.* Vol. **10**, P.403 - 405.

2. **Nayak, A.,** Rao, D.R., and Banerjee, H.D. (1991) Electrical and Optical Properties of e-Beam Evaporated Zn_3P_2 Thin Films. *Bull. Electrochem*. Vol.**7**, P. 133 - 135.

3. **Nayak, A.,** Rao, D.R., and Banerjee, H.D. (1991) Derivative Spectra of Polycrystalline Zn_3P_2 Thin Films. *Solid State Comm.,* Vol.**78**, P. 149 – 151.

4. Rao, D.R., **Nayak, A.** (1992) Preparation and Characterization of Zn_3P_2 – Cd_3P_2 Solid Solutions. *J. Mater.Sci.* Vol. **27**, P. 4389- 4392.

5. **Nayak, A.** and Rao, D.R. (1992) Optical Constant of Zn_3P_2 – Cd_3P_2 Thin Films. *Optical Materials,* Vol. **1**, P. 85 – 89.

6. Rao, D.R., **Nayak, A. (**1993) Preparation and Characterization of Cd_3P_2 Thin Films. *J. Appl. Phys.*, Vol. **74**, P. 214 - 218. Doi: 10.1063/1.354148.

7. **Nayak, A.** and Rao, D.R. (1993) Photoluminescence Spectra of Zn_3P_2 – Cd_3P_2 Alloy Films. *Appl. Phys. Lett.,* Vol. **63**, P. 592 – 593. Doi: 10.1063/1.110779.

8. **Nayak, A.** and Rao, D.R. (1994) Electrical Properties of Electron Beam Evaporated Zn_3P_2 – Cd_3P_2 Alloy Films. *Matter. Chem. & Phys.,* Vol. **37, P.** 225 – 229

9. **Nayak, A.** and Banerjee, H.D. (1995) Bonding Characteristics and Optical Properties of Amorphous Carbon/Diamond Films Deposited by Electron Beam Activated Plasma CVD Method. *Phys. Stat. Sol (a).* Vol. **149**, P. 629 – 635.

10. **Nayak, A.** and Banerjee, H.D. (1995) Electron Beam Activated Plasma Chemical Vapour Deposition of Polycrystalline Diamond Films. *Phys. Stat. Sol (a).* Vol. **151**, P. 107 –111.

11. **Nayak, A.** and Banerjee, H.D. (1997) Bonding and Optical Properties of Diamond Like Hydrocarbon Films Deposited by Plasma Decomposition of Acetylene: The Role of Water Vapour Addition. *Mater.Chem. & Phys.,* Vol. **47**, P. 159 - 163.

12. **Nayak, A.** and Banerjee, H.D. (1997) Photoluminescence Spectroscopic Investigation on the Quality of Diamond Films Grown in Oxy-Acetylene Combustion Flame. *Thin Solid Films,* **Vol. 298**, P. 14 – 21. Doi: 10.1016/S0040-6090(96)09139-0.
13. **Nayak, A.** and Banerjee, H.D. (1999) X-Ray Photoelectron Spectroscopy of Zinc Phosphide Thin Films. *Appl. Surf. Sci.,* Vol. **148**, P. 205 – 210.

14. **Nayak, A.** and Banerjee, H.D. (1999) X-Ray Photoelectron Spectra of Zn_3P_2 – Cd_3P_2 Alloy Semiconducting Thin Films. *Matter.Chem & Phys.,* Vol. **60,** P. 95 – 98.

15. Halder, S.R., **Nayak, A.**, Chini, Roy, S.K., Yamamoto, N.And Bhunia, S. (2009) Vapor condensation growth and evaluation mechanism of ZnO nanorod flower structures. *Phys. Stat. Sol. (a),*Vol. **207**, P.364 – 369. doi: 10.1002/ pssa.200925223.

16. Halder, S.R., **Nayak, A.**, Chini, T.K. and Bhunia, S.(2010) Strong temperature and substrate effect on ZnO nanorod flower structures in modified chemical vapor condensation growth. *Current Appl. Phy.,* Vol. **10,** P.942 – 946. doi:10.1016/j-cap.2009.11.077.

17. Haldar, I., Kundu, A., Biswas, M., and **Nayak, A.** (2011) Preparation and evaluation of a poly (N-vinylcarbazole) – Fe_3O_4 (PNVC-Fe_3O_4) nanocomposite. *Matter.Chem & Phys.,* Vol. **128,** P. 256 – 264. doi: 10.1016/j.matchemphys.2011.03.008.

18. Haldar, I., Biswas, M., and **Nayak, A.** (2011) Microstructure, dielectric response and electrical properties of polypyrrole modified poly (N-vinylcarbazole) – Fe_3O_4 (PNVC - Fe_3O_4) nanocomposites. *Synthetic Metals*, Vol. **161**, P. 1400 – 1407. doi: 10.1016/j-synthmet. 2011.05.008.

19. Haldar, I., Biswas, M., and **Nayak, A.** (2012) Preparation and evaluation of microstructure, dielectric and conductivity (ac/dc) characteristics of a polyaniline/ poly N-vinylcarbazole/ Fe_3O_4 nanocomposites. *J. Polym. Res.,* Vol. **19**, P. 9951:1-9.doi:10.1007/s10965-012-9951-0.
20. Haldar, I., Biswas, M., **Nayak, A.** and Sinha Ray, S. (2012) Morphological, dielectric and electrical conductivity characteristics of clay-containing nanohybrids of poly (N-vinylcarbazole) and polypyrrole. *J. Nanosci. Nanotech.,* Vol. **12**, P. 7841 – 7848. doi: 10.1166/jnn.2012.6589.

21. **Nayak, A.** and Bhunia, S. (2012) Microstructure and dielectric functions of Ge nanocrystals embedded between amorphous Al_2O_3 films: study of confinement and disorder. *J. Exptl. Nanosci*., Published on line. doi:10.1080/17458080.2012.669852.

22. Haldar, I., Biswas, M., **Nayak, A.** and Sinha Ray, S. (2013) Dielectric Properties of Polyaniline-Montmorillonite Clay Hybrids. *J. Nanosci. Nanotech.,* Vol. **13 (1-6)**, P. 1824-1829. doi: 10.1166/jnn.2013.7125.

23. Haldar, I., Biswas, M., and **Nayak, A.** (2014) Dielectric and Conductivity Characteristics of $CuCl_2$ Doped Poly (N-vinyl carbazole) and Its Hybrid Nanocomposites with Fe_3O_4. *J. Nanosci. Nanotech.,* Vol. **14 (N.8)**, P. 5774-5778. doi: 10.1166/jnn.2014.8885.
24. Haldar, I., Biswas, M., and **Nayak, A.** (2014) Some Observations on the Dielectric and Conductivity Behavior of Nanocomposites of Polyaniline with Fe_3O_4 and $CuFe_2O_4$. *Polymer-Plastics Technol. & Engg.,* **Vol. 53**, P. 1317-1326. doi: 10.1080/ 03602559.2014.886118.

25. Sarkar, S.K., Raul, K.K., Pradhan, S.S., Basu, S., **Nayak, A.** (2014) Magnetic Properties of Graphite Oxide and Reduced Graphene Oxide. *Physica E,* Vol. 64, P. 78-82. doi: 10.1016/j-physe.2014.07.014.

26. Mukherjee, S., Pradhan, A., Mukherjee S., Maitra, T., **Nayak, A.,** Bhunia, S. (2015) Growth and Characterization of Cubic and Non-Cubic Ge Nanocrystals. AIP Conf. Proc **Vol. 1728**, P. 0220111-1-020111-5; doi:10.1063/1.4946162.

27. Pradhan, A., Maitra, T., Mukherjee, S., Mukherjee S., **Nayak, A.,** Satpati, B., Bhunia, S. (2015) Observation of Natural Superlattice in $Al_xGa_{1-x}As$ Layers Grown by Metalorganic Vapour Phase Epitaxy. AIP Conf. Proc **Vol. 1728**, P. 020243-1-020243-6; doi:10.1063/1.4946294.

28. Samanta, S., Jana, K., Gupta, K., **Nayak, A**., Ghosh, U.C. (2016) NiV_2O_6-incorporated poly-(3, 4-ethylenedioxythiophene) polymer nanocomposite: synthesis, characterization, temperature dependent dielectric property and ac-conductivity relaxation behavior. Mater. Chem. Phys. **Vol. 182**, 173-181; DOI: 10.1016/j.matchemphys.2016.07.020.

29. Das, R., Gupta, K., Jana, K., **Nayak, A.**, Ghosh, U.C. (2016) Preparation, characterization and dielectric, ac conductivity with electrochemical behavior of strontium zirconate. Adv. Mater. Lett. **Vol. 7(8)**, P. 646-651; DOI: 10.5185/amlett.2016.6294.

30. Haldar, I., Nayak, A. (2017) Dielectric, ac conductivity relaxation and magnetoresistive behaviors of $BaTiO_3$-ppy nanocomposites. *J. Nanosci. Nanotech.* DOI: 10.1166/jnn.2017.13784.

PAPER PRESENTED IN SEMINARS AND CONFERENCES (2006 -)

1. **Nayak, A**., Bhunia, S. and Chini, T.K. (2006) Growth of flower-like ZnO nanocrystals at low temperature. International Conference on Lasers and Nanomaterials (ICLAN); held at Saha Institute of Nuclear Physics Campus, Kolkata. November 10 – December, 2006.

2. **Nayak, A.** and Chetri, R. (2008) Microstructure and optical studies of non-cubic germanium nanocrystals. Condensed Matter Days-2008; held at Department of Physics, Visva-Bharati, India. August 29-31, 2008.

3. **Nayak, A.**, Haldar, I and Biswas, M. (2012) Microstructure, dielectric and conductivity characteristics of polypyrrole and polyaniline modified (poly-N-vinyl carbazole-Fe_3O_4) nanocomposites. International Conference on Nanoscience and Technology (ICONSAT 2012), ARCI, Hyderabad, India. 20 – 23 January, 2012.

CREATION OF RESEARCH FACILITY AND INFRASTRUCTURE DEVELOPMENT

- DST FIST Program: I am always being actively involved for planning and procuring valuable equipment to the Department for creating infrastructure facilities. Many valuable instruments like UV-Vis-NIR spectrophotometer with reflectance measurement facility (Perkin Elmer, Lamda-750), Vacuum coating unit (Hind High vacuum Co Ltd.), FTIR spectrometer (Spectrum 2, Perkin Elmer), Electrochemical Workstation (CH Instruments) etc. have been successfully installed in the Department.

- I have taken a leading part for the creation of substantial instrumental facilities for research and teaching. A new generation sophisticated XRD (PANalytical X'PERT PRO) machine was commissioned and installed in the year 2010 under my direct supervision. This equipment was purchased from the development grant (2009-10) received from the Govt. of West Bengal.
- One HIOKI 3532-50 LCR HiTester has also been purchased from the UGC grant under my suggestions.

MAJOR DEPARTMENTAL COMMITTEES MEMBERS

- DST-FIST Program Monitoring Committee
- Purchase Committee
- Departmental Academic & PhD Committee

MAJOR COLLEGE/UNIVERSITY COMMITTEES MEMBERS

- Purchase-Cum Tender Committee 2013-2016

In this committee my role is to evaluate the tender documents and to frame the guidelines and purchase policy of the University.

MAJOR ADMINISTRATIVE RESPONSIBILITY (PAST)

- Head of the Department of Physics, Darjeeling Govt. College 2001-2002
- Assistant Superintendent (Government Eden Hindu Hostel) 2002-2004
- In many occasions I have been given the responsibilities normally assumed by the Head of the Department.

MAJOR ADMINISTRATIVE RESPONSIBILITY

- Professor-in-Charge, Library Services 2016-

In addition to the routine work, my involvement to the ongoing program related to the modernization of library services:

- User awareness program of e-resources
- Awareness program against plagiarism using TURNITIN software
- Off campus e-resources under virtual private net-work (VPN)
- Empanelment of vendors for book purchasing and book binding
- Conversion of Library book data from existing Libsys to Excel
- Development of Institutional Repository: Digitization and making the digital copy available to all through web for the important manuscripts and magazines of Presidency College/University has been started.
- Complete rearrangement of collections: Books are properly classified and rearranged. Initiatives have been taken to automate the library services and collection properly. Real time OPAC with the facility of vernacular language searching and actual status of the document along with the online request, email and SMS facility to the users have been started.

(Arabinda Nayak)