CHEMISTRY

Phone :+ 91-33-2414-6223
Int. :2267/2329
2147 (Inorganic) /2104 (Organic) /
2458 (Physical) /2453 (Analytical)
H.O.D. : Prof. Pratik Kr. Sen
E-mail :hod@chemistry.jdvu.ac.in

1 A. Courses Offered:

Name of the Course	Duration of the Course	No. of Students
B.Sc.	3 years	50 × 3
M.Sc. (Day)	2 years	35 × 2

B. No. of Faculty Members:

Professor	Reader	Lecturer (Sr. Scale)/ Lecturer
23	07	18

2 A. Area of Research Activities: (Broad Areas)

Professor Rupendranath Banerjee

Inorganic Reaction Mechanism

Professor Koushik Das

Evaluation of the performance characteristics of electrodeposited Pb and PbO2 on carbon support as lead acid battery electrodes. Electro – oxidation of alcohols and glucose on oxide electrodes for fuel cell application.

Professor Subhas Chandra Bhattacharya

Photochemistry, Surface Chemistry, Nanoparticles: - Synthesis and Characterization.

Professor Samaresh Bhattacharya

Coordination chemistry, Organometallic Chemistry, Catalysis

Professor Chittaranjan Sinha

Design of molecules, their synthesis, structural studies, exploration of chemical and redox properties of the compounds are main target of our group. Metallo-organic, organometallics, supramolecular chemistry, photovoltaic activity and photochromism, antimicrobial activity and cytotoxicity of molecules are broad field of study. Azoimine (-N=N-C=N-) and diimine (-N=C-C=N-) functions are two groups incorporated in the organic moiety and their studies on metal complexes are broad based area. Metal carbonyls in particular reference to Group 6 (Cr, Mo, W) and Group 8 (Ru and Os) carbonyls are studied using these ligands.

Professor Ambikesh Mahapatra

Kinetic and mechanistic studies on ligand substitution and redox reactions in solution in presence of micelle, reverse micelle, polymer, nanoparticles, etc.

Professor Subrata Mukhopadhyay

1. Inorganic Reaction Mechanisms
2. Supramolecular Chemistry

Professor Mahammad Ali

1. Organometallics: Fischer type carbene complexes: Synthesis and kinetics studies of nucleophilic substitution reactions.
2. Coordination chemistry of transition metal ions: (i) Synthesis of chiral coordination polymers (ii) Catalysis (iii) Synthesis of magnetic materials.
3. Polyoxometallates: Synthesis of new materials with catalytic and magnetic properties.

Professor Nitin Chattopadhyay

Laser Induced Optoacoustic Spectroscopy, Laser Spectroscopy, Steady-state and Time-resolved fluorometric study of the photophysical and photochemical processes (ESPT, TICT, electron transfer, charge transfer and energy transfer) in homogeneous as well as microheterogeneous environments, Theoretical modeling and simulations to rationalize and justify photophysical and/or photochemical observations, characterization of substances for Material Science. Fluorosensing, Nanoscience.

Professor Samiran Mitra

"STRUCTURAL ASPECTS AND MAGNETO-STRUCTURAL CORRELATION OF COORDINATION COMPOUNDS."

Professor Asok Kumar Mallik

Synthesis and transformations of Oxygen and Nitrogen Heterocycles and newer applications of some synthetic reagents.

Professor Somnath Ghosh

Synthesis and Reactions of Naturally occurring biologically active heterocyclic compounds. Photochemical and Microwave induced reactions of various heterocycles and their mechanistic studies.

Professor Rina Ghosh

1. Synthesis of oligosaccharides related to bacterial antigen.
2. Synthesis and studies on low molecular weight organogelators and the corresponding gels based on carbohydrates.
3. Stereo- and regio-selective synthesis based on carbohydrates.
4. Studies on Plant Lectins.

Professor Kalyan Kumar Das

1. Ab initio based multireference Configuration Interaction studies of diatomic molecules for the determination of their structural and spectroscopic properties.

iii) Quantum mechanical studies of the ground and low-lying excited state properties of large complex molecules.

Professor Pratik Kumar Sen

Kinetics and mechanism of electron transfer reactions between Inorganic and Organic substrates and transition metal ion oxidants in aqueous and micellar phase.

Professor Swapan Kr. Bhattacharya

Solution Thermodynamics and Electrochemistry.

Dr. Kausikisankar Pramanik

Coordination Chemistry and Metal mediated Organic Transformation

Dr. Sujoy Baitalik

The focus of our research is to investigate photophysical and photochemical properties of visible light absorbing compounds having redox active sites which can facilitate energy transfer. To this end, our effort is directed to synthesize cluster of chromophores that may be used to harvest light and chanelize this energy to electrochemical cells. The types of chromophores that we explore are the coordination compounds of platinum metals of conjugated nitrogen containing heterocyclic ligands exhibiting metal-to-ligand charge transfer transition. The synthesis and structural characterization of the complexes is followed by investigation of their absorption and emission spectral characteristics, redox properties, measurements of quantum yields, life times of the excited states etc.

Dr. Subrata Koner

Heterogeneous Catalysis, Molecular Magnetism, Coordination Chemistry

Dr. Biplab Bhattacharjee

Theoretical Chemistry: Statistical Mechanics, Molecular dynamics Simulation.

Dr. Kajal Krishna Rajak

1. Synthesis, Structure, Characterization and Reactivity of Functional Model Complexes of Vanadium, Iron, Copper and Nickel.
2. Interaction of Biomolecules with Metal Complexes: Synthesis of Effective Metal Nuclease.
3. Chemistry of Polynuclear Species Having Interesting Magnetic Properties.
4. Chemistry of Heavier Transition Elements Especially of Rhenium.
5. Secondary Interactions in Coordination Complexes.

Dr. Chandan Kumar Mondal

Pulse shape optimization, Thermal and environmental effects calculation for the photo dissociation dynamics of some real molecules and molecular ions

Dr. Soumen Ghosh

Biophysical and Surface Chemistry Study of Micelle and Interaction of Surfactant with Polymer and Protein.

Dr. Sanjay Bhar

Development of novel methods and reagents for organic transformations and study of eco-friendly organic reactions.

Dr. Gourhari Maiti

1. Development of reagent and methodologies in organic synthesis
2. Synthesis of heterocyclic compounds of biological importance
3. Studies on various Multi-component reactions

Dr. Umasish Jana

Development of new reaction and methodology for selective organic transformations. Working on various aspects of green chemistry such as development of atom-economical reaction, catalytic reaction, reaction in aqueous solution etc.

Dr. Umesh Chandra Halder

i) Development of delivery systems using protein aggregates/ gels of model drugs. Studies of photophysical and photobiological aspects of proteins, protein-nanoparticles.

ii) Isolation and physico-chemical studies on some proteinases and inhibitors, Studies on their unfolding/refolding kinetics, Disulfide folding pathways and determination of the solution structures of proteins.

iii) Chemical modifications of proteins to enhance their functional properties.

Dr. Saubhik Haldar

1. Design, Synthesis and Bio-physical Characterization of Self-assembly of peptide amphiphiles
2. Development of Supramolecularly organized materials for Artificial Extra-Cellular Tissue Engineering Matrix.
3. Low molecular weight chiral Hydrogels and organogels from small peptides and peptidomimetic systems.

Dr. Saurabh Das

Complex formation and characterization of hydroxy-9,10-anthraquinones by different spectroscopic techniques is being done in order to see whether these molecules that closely resemble the anthracycline class of anticancer antibiotics can mimic the chemistry of the anthracycline antibiotics. For this studies on electrochemical behavior of the hydroxy-9,10-anthraquinones, their metal complexes, interaction of the hydroxy-9,10-anthraquinones and their metal complexes with calf thymus DNA, their action on specific biological cell lines etc. are being done. The possibility of these compounds to act as *radiosensitizers* is also being investigated.

Complex formation and characterization of different types of azo compounds with metal ions is attempted by different spectroscopic techniques. Intention is to see whether complex formation is able to reduce several forms of toxicity associated with most compounds containing the azo moiety. In order to achieve this DNA

binding studies are done and the interaction of the azo compounds with DNA (*both in vivo and in vitro*) is being compared to that obtained for the metal complexes of the same azo compound. The possibility of some of these complexes to act as radiosensitizer and/or radioprotector is also being seen.

Dr. Pradip Kumar Mahapatra

Bio-physical Chemistry – Adsorption on amphiphiles, Drug – Protein interactions, Structure – function study of protein.

Dr. Jnan Prakash Naskar

Ferrocene derivatives are unique monoelectron reservoir complexes. In redox catalytic reactions they are potential mediators as well. Organic moieties with tagged redox centers like ferrocene are promising for developing molecular electronic devices, model photosynthetic systems, light harvesting systems and electrochemical sensors. With this end, our endeavour is to develop novel organic moieties with standard redox attachment. Parallel intention is to explore the metal binding aspects of these redox tagged organic moieties as ligands.

Dr. Arup Gayen

Environmental catalysis

Dr. Shouvik Chattopadhyay

Synthetic Inorganic Chemistry

Dr. Tanurima Bhaumik

Synthetic Organic Chemistry

Dr. Amrita Saha

Coordination Chemistry

Dr. Partha Roy

Coordination Chemistry

Dr. Tapan Kumar Mondal

Coordination and Organometallic Chemistry-Experimental and Theoretical Computations (DFT and TD DFT).

B. Major Research Project:

Professor Rupendranath Banerjee

No.	Title of the Project	Funding Agency	Project No	Dated
1	Reactivity and Mechanistic Studies in Radicals: Effect of Metal Ions	CSIR, New Delhi	01(2085)/06/ EMR-II	9.10.2006
2	Kinetics and Mechanism of Reactions of Some Radicals	DST, New Delhi	SR/S1/IC-40/2007	4.06.2008

Professor Chittaranjan Sinha

1. Photo and protonation induced changes in structures, reactivities and

electrochemical properties of azo-heterocyclic conjugated metal complex systems May, 2006 April, 2009 9,00,000/- CSIR, New Delhi

2. Complexes of N_xS_y ligands involving imidazole-N, azo-N and thioether-S donors. Studies on high potential redox systems May, 2006 April, 2009 5,01,600/- UGC, New Delhi
3. "Photochromic Liquid Crystals and Metallomesogens of Azoimidazoles" July, 2009 June, 212 37,28,000/- DST, New Delhi
4. Studies on coumarin appended azo (-N=N-) and imine (-C=N-) functionalized fluorescent molecules and their metal complexes Waiting

Professor Subhas Chandra Bhattacharya

1. Effect on Biomolecules by synthesized Nanoparticles using ionizing radiations, DAE, 2009-2012.
2. Photophysical Studies of Substituted Pyrazoline Compounds in Microheterogeneous Environment, CSIR, 2006-2009.
3. Physicochemical studies on pulmonary and other vsurfactants, coacervate formation and synthesis of nanoparticles, DST, 2006-2009.
4. Interaction of Salts and Surfactants with Biopolymers in Aqueous Medium at Different Temperatures with Reference to their Dissolution, Viscosity and Filtration Behavior; Halliburton Energy Services, 2006-2009.

Professor Nitin Chattopadhyay

1. Study of the non-radiative components and hence excited state photoprocessesin homogeneous and microheterogeneous environments through laser-induced optoacoustic spectroscopy (LIOAS), D.S.T., New Delhi, 30.11.2005 – 29.05.2009, Rs. 33, 83, 908.
2. Photophysics and relaxation dynamics of some biological photosensitizers in confined systems, C.S.I.R., New Delhi, 02.07.2007 – ongoing, Rs. 6, 32, 000.
3. Photophysical and dynamical behavior of drugs in bio and biomimetic environments: An approach towards drug distribution and targeted drug delivery, D.B.T., New Delhi, 28.05.2008 – ongoing, Rs. 50,46,100.

Professor Rina Ghosh

"Low molecular mass organogelators (LMOGs) with special reference to carbohydrate field"- DST scheme No. SR/S1/OC-28/2006 dt. 25.01.07.

Dr. Jnan Prakash Naskar

DST, Govt. of India, New Delhi Project Title "Copper Chemistry of Novel Ferrocene Appended Ligands" Ongoing.

Dr. Soumen Ghosh

Surfactant - Biopolymer Interaction Funded by Department of Science and Technology, Govt. of India; Duration of the project: 2007-continuing.

Dr. Partha Roy

JU Research Grant, Jadavpur University, (Synthesis, characterization and catalytic properties of copper(II) complexes)

Dr. Amrita Saha

JU Research Grant, Jadavpur University, (Synthesis and characterization of heavier transition metal complexes of a new symmetric dinucleating ligand)

Dr. Shouvik Chattopadhyay

JU Research Grant, Jadavpur University (Synthesis, characterization and magnetic properties of copper(II) and Ni(II) complexes)

Dr. Subrata Koner

1. UGC project, "Synthesis, structure and magneto-structural correlation of transition metal containing molecular assemblies"
2. Min. Environment and Forests, Govt. of India project, "Bio-inspired catalytic systems: A viable option for development of cleaner chemical process

Dr. Sujoy Baitalik

Funding Authority/Project Title/Amount (in rupees)/Present Status

1. Department of Science & Technology (DST) Syntheses, Redox Activities and Photophysical Properties of Multinuclear Iron, Ruthenium and Osmium Complexes 23,99,000.00 On-going
2. Council of Scientific & Industrial Research (CSIR) Syntheses and Proton-Induced Tuning of Fluorescence, Redox Properties and Electron Transfer Reactions of Polynuclear Platinum Metal Complexes 12,00,000.00 (approx.) On-going

Dr Chandan Kumar Mondal

Thermal and Environmental Effects on the Photo-dissociation Dynamics of a Diatomic and Triatomic Molecules and Molecular ions. (UGC, New Delhi)

Dr. Saubhik Haldar

Development of a nanomolecularly controlled extra-cellular matrix for tissue engineering using lyotropic network of peptide amphiphiles (DST, Govt of India.)

3 A. Invited Lectures Delivered/ Session Chaired:

Professor Rupendranath Banerjee

No.	Name of the Seminar etc.	Place	Duration
1.	Professor Aparesh Bhattachrya Memorial Lecture	Scottish Church College, Kolkata	90 min.
2.	Acharya Prafulla Chandra Roy Memorial Symposium on CHEMISTRY TODAY (2008)	Meghnad Saha Hall University of Calcutta; 92, APC Road. Kol-700009	1hr
3.	OUTLOOK AND AVENUES OF MODERN SCIENCE	Physics Seminar Room, PG Science Building, Jadavpur University.	90 minutes
4.	COORDIANTION CHEMISTRY	Rishi Bankim Chandra College, Naihati	1 hr.

5	Refresher Course	Calcutta University	3hr
6	Refresher Course	Jadavpur University	90 min
7	Special Lecture	Bethune College	90 min
8	Special Lecture	Sarojini Naidu College	90 min
9	Special Lecture	Krishnanagar Govt. College	90 min
10.	Special Lecture	Bankura Christian College	90 min

Professor Nitin Chattopadhyay

1 **Resource Person** at **Refresher Course on Chemistry: Trends and Perspectives;** organized by the UGC-Academic Staff College, Jadavpur University; January 02 – 22, 2008.

2 Invited talk on "**Cyclodextrin encapsulation of a b-carboline analogue: Simple complexation to nanotubular suprastructure formation**" in International Conference on Soft Systems **(ICSS-2008)**, Central Glass and Ceramic Research Institute, Kolkata, February 13-15, 2008.

3 Invited talk on "**Formation of probe-anchored cyclodextrin nanotube: role of the CD cavity size**" at Sambalpur University, Sambalpur, Orissa, April 17, 2008.

4 **Resource Person in the JBNSTS Workshop** "Chemistry for Advanced School Children" at Dibrugarh Bengali High School, Dibrugarh, during May 19-22, 2008 organized by Jagadish Bose National Science Talent Search, Kolkata.

5 **Resource Person at Refresher Course in Chemistry;** organized by the UGC-Academic Staff College, Sambalpur University; July 07 – 27, 2008 (21.07 & 22.07).

6 Invited talk in the Sixth CRSI (Kolkata Chapter) Symposium at North Bengal University on August 02, 2008.

7 **Resource Person at Refresher Course in Chemistry;** organized by the UGC-Academic Staff College, University of Calcutta; August – Sept. 11, 2008 (Sept. 01, 2008).

8 Invited talk in the **Division of Frontier Materials Science, Graduate School of Engineering Science, Osaka Univesity, Japan**, on October 17, 2008.

9 **Plenary Lecture** in 4th Asia Oceania Conference on Photobiology; Organised by Department of Zoology, Banaras Hindu University, Varanasi, India; November 24-26, 2008.

10. Invited talk in the **National Conference on Recent Trends in Chemical Sciences (RETICS-2009)**; Organised by Department of Chemistry, Sambalpur University, Orissa, India; March 28-29, 2009.

11. Invited talk in the **National Conference on Surfactants, Emulsions and Biocolloids (NATCOSEB-XIV)** organized by Department of Chemistry, Kashmir University, Srinagar, India; July 28-30, 2009.

12. Invited talk in the **CRSI (Kolkata Chapter) Symposium (VII) on Current Trends of Chemical Research** organized by Department of Chemistry, R. K. Mission Residential College, Narendrapur; August 08, 2009

Professor Rina Ghosh

1. Invited lecture on the topic "Catalytic Asymmetric reactions" in the Refresher Course, 2009 organised by the Department of Chemistry, Jadavpur University, Kolkata.
2. Invited lecture on the topic "Studies on Carbohydrate Derived Low Molecular Mass Organogelators and the Corresponding Gels" in the symposium NATCOSEB-XIV organized by Department of Chemistry, University of Kashmir during 28-30 July, 2009.

Professor Subhas Chandra Bhattacharya

1. Invited talk, U.G.C Refresher Course, Jadavpur University, Kolkata: January, 2008.
2. Invited talk, International Conference on Soft Systems (ICSS-2008): February 2008.
3. Visiting Professor, National Cheng Kung University, Tanien, Taiwan, August 2008.
4. Visiting Professor, National University of Applied Science, Kaoshiung, Taiwan, August 2008.
5. Invited talk, U.G.C Refresher Course, Jadavpur University, Kolkata: January, 2009.
6. Invited talk, International Conference at ISI, Kolkata: February, 2009.
7. Invited talk, National Conference at Kashmir University, India, July, 2009.
8. Invited talk, National Conference at BARC, Mumbai, India, and August, 2009.

Professor Samaresh Bhattacharyya

1. International Conference on Hydrogen and Hydrogen Storage: Methods and Materials January 3-6, 2009 Indian Institute of Science – Bangalore, (gave a talk on 03-01-2009)
2. International Symposium on Frontiers of Functional Materials January 6-7, 2009 University of Calcutta (held at SINP) (chaired a session)
3. Refresher Course on "Chemistry: Trends and Perspectives" January 02-22, 2009 Department of Chemistry, Jadavpur University (gave a talk)
4. Gave a talk on 19-01-2009 at Science Faculty Jadavpur University
5. Gave a talk on 30-05-09 in the Seminar organized as part of the felicitation program for Prof. M B Saha at the Department of Chemistry Jadavpur University
6. Department of Chemistry Indian Institute of Technology – Bombay July 31, 2009 (Gave a talk)
7. Seventh Chemical Research Society of India (Kolkata Chapter) Symposium August 8, 2009 Department of Chemistry, R K Mission, Narendrapur, (chaired a session)
8. Refresher Course at the Department of Chemistry, University of Calcutta (gave two talks on August 17, 2009)

Dr. Subrata Koner

149th Birthday of Acharaya P. C. Ray Commemorative Symposium of Chemistry, Indian Chemical Society, Kolkata 2009.

Dr. Biplab Bhattacharjee

Title	Attended as	Year	Place	Description From	To	Sponsor
1 Ref. Course in Chemistry	Resource Person	2009	UGC-Acad. Staff College, University of Calcutta, Kolkata-700009	17th Aug.	5th Sept.	U. G. C.
2 Ref. Course in Chemistry	Resource Person	2009	UGC-Acad. Staff College, Jadavpur University, Kolkata-32	2nd Jan.	22nd Jan.	U. G. C.

Dr. Jnan Prakash Naskar

1. Delivered an invited lecture on "Chemistry of Copper(I)-Water Bond: Some Novel Observation" on 08.10.09 in the Mukarram Hussain Khundker Biggan Bhaban, Department of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh.

B. Seminar/ Workshop/ Conference/ Symposium Attended:

Professor Pratik Kumar Sen

1. Presented a poster in the 45th Annual Convocation of Chemists and International Conference on recent Advance in Chemistry Organised by Indian Chemical Society held at Karnataka University, Dharwar, on November 23 – 27, 2008.
2. Attended the National Conference on Life & work of Sir J.C. Bose in the perspective of Moderation Science & Technology organized by Faculty Council of Science, J.U. at J.U. on March 20 – 21, 2009.
3. Attended the Acharya Prafulla Chandra Ray Memorial Symposium on Chemistry Today organized by Indian Chemical Society held at Bose Institute, Kolkata on August 01 – 02, 2009.

Professor Nitin Chattopadhyay

1. International Conference on Soft Systems **(ICSS-2008)**, Central Glass and Ceramic Research Institute, Kolkata, February 13-15, 2008.
2. Sixth CRSI (Kolkata Chapter) Symposium at North Bengal University, Siliguri, August 02, 2008.
3. 4th Asia Oceania Conference on Photobiology; Organised by Department of Zoology, Banaras Hindu University, Varanasi, November 24-26, 2008.
4. National Conference on Luminescence and its Applications (NCLA-2009) at Indian Association for the Cultivation of Science, Kolkata, February 19-21, 2009.
5. National Conference on Life & Woeks of Sir J. C. Bose in the perspective of Modern Science and Technology, March 20-21, 2009
6. National Conference on Recent Trends in Chemical Sciences (RETICS-2009); Organised by Department of Chemistry, Sambalpur University, Orissa, March 28-29, 2009.

7 National Conference on Surfactants, Emulsions and Biocolloids (NATCOSEB-XIV) organized by Department of Chemistry, Kashmir University, Srinagar, July 28-30, 2009.

8 CRSI (Kolkata Chapter) Symposium (VII) on Current Trends of Chemical Research organized by Department of Chemistry, R. K. Mission Residential College, Narendrapur; August 08, 2009.

Professor Chittaranjan Sinha

1 16th Refresher Courses in Environmental Science, Academic Staff College, Burdwan University, 3rd September, 2009 on "Oxygen Toxicity and Antioxidant Defence Support"

2 Refresher Course talk, Academic Staff College, Jadavpur University, January, 2009, on "Metal-carbonyl complexes of azoimine and diimine functions"

3 Refresher Course talk, Academic Staff College, Burdwan University, May, 2009 on "Photochromism of arylazoimidazoles in different environments"

Professor Rina Ghosh

Attended the "Trends in Surface Science and Related Areas (TSSRA-2009)" organized by Indian Society of Surface Science and Technology and Bose Institute on 6th November, 2009 at Bose Institute.

Professor Ambikesh Mahapatra

Sl. No. Type of Participants/Name of Seminar/ Conference etc./Place/ Duration

1 One paper accepted for presentation Acharya Prafulla Chandra Ray Memorial Symposium on Chemistry Today (2008) University College of Sc.& Tech., Calcutta University 01.08.2008-02.08.2008

2 One paper accepted for presentation National Conference on Recent Advances in Photosciences Department of Chemistry, Jadavpur University 09.08.2008

3 One paper accepted for presentation 45th Annual Convention of Chemists 2008 and International Conference on Recent Advances in Chemistry P G Department of Studies in Chemistry, Karnatak University, Dharwad, Karnataka 23.11.2008-27.11.2008

4 Participant National Symposium on Frontiers in Photobiology Bhabha Atomic Research Centre, Mumbai 24.08.2009- 26.08.2009

Dr. Shouvik Chattopadhyay

Acharya Prafulla Chandra Ray and Chemistry today' organised by Indian Chemical Society)

Dr. Saurabh Das

1 National Conference on Recent Advances in Photosciences at Jadavpur University organized by Indian Photobiology Society and Department of Chemistry on August 09, 2008. *Interaction of 1,2,4-trihydroxy-9,10-anthraquinone with calf thymus DNA by spectroscopic techniques* Piyal Das and Saurabh Das.

2. National Symposium on Advances in Chemistry [NSAC - 2008] at Jadavpur University organized by Centre for Advanced Studies (UGC), Department of Chemistry on November 5th, 2008.
3. National Conference on Life and Works of Sir J C Bose in the perspective of modern science and technology organized by Faculty of Science, Jadavpur University on March 20-21, 2009.
4. Synthesis and characterisation of a novel azo-dye 2-hydroxyphenyl azo-2′-naphthol and its Cu(II) complex. Tathagata Deb, Saurabh Das and Manju Bikash Saha.
5. Interaction of 1,2,4-trihydroxy-9,10-anthraquinone, an analogue of anthracycline anticancer drugs, with calf thymus DNA. Piyal Das, Partha Sarathi Guin, Parikshit C. Mandal and Saurabh Das.
6. Studies on the complex formation of 2-Mercaptophenylazo-4¢-methoxy-2¢-phenol with Cu(II)Debasish Chakrabarty, Saurabh Das, Manju Bikash Saha.
7. Synthesis and characterization of the formation of Ni(II) complex with 2,2′,4,6-tetrahydroxyazobenzene Mrinal Kanti Halder, Saurabh Das, Manju Bikash Saha.
8. Interaction of calf thymus DNA with Ni(II) complex of sodium 1,4-dihydroxy-9,10-anthraquinone-2-sulphonate, an analogue of the core unit of anthracycline antibiotics: spectroscopic studies Partha Sarathi Guin, Saurabh Das, P. C. Mandal.
9. SYMPOSIUM - VII on Current Trends of Chemical Research organized by the Chemical Research Society of India (Kolkata Chapter) at Ramakrishna Mission Residential College, Narendrapur on August 8, 2009.

Dr. Soumen Ghosh

1. One day Seminar on "Trends in Surface Science and Related Areas (TSSRA-V)", December 6, 2008 held at Department of Chemistry, North Bengal University, Darjeeling, West Bengal.
2. National Conference on "Frontiers of Colloids, Surface and Nanostructured Systems", February 18-20, 2009 organized by Department of Chemistry, Manipur University, Canchipur, Imphal.
3. National Conference on "Life & Works of Sir J. C. Bose in the Perspective of Modern Science", March 20-21, 2009 organized by Faculty of Science, Jadavpur University held at Triguna Sen Auditorium, Jadavpur University, Calcutta, West Bengal.
4. 14th National Conference on "Surfactants, Emulsions and Biocolloids (NATCOSEB-XIV)", July 28-30, 2009 organized by Department of Chemistry, University of Kashmir, Srinagar - 190006, J & K and Indian Society for Surface Science and Technology (ISSST).

Dr. Gourhari Maiti

1. Attended 12th ICSN Symposium: From Organic chemistry to Chemical Biology, 11 and 12 June, 2009, Salle de la Terrasse, Gif-Sur Yvette, France.
2. Attended Tenth Tetrahedron Symposium - Challenges in Organic and Bioorganic Chemistry, June 23-26, 2009, Paris, France.

Dr. Subrata Koner

S. Jana, B. Dutta, and S. Koner, Facile synthesis of palladium nanoparticles in Y-zeolite matrix: An efficient catalyst for Heck coupling reaction, National Symposium on Nanomaterials, Kolkata, 2008.

Dr. Biplab Bhattacharjee

Nearest neighbor distribution functions and their parametric dependence for a binary Lennard-Jones fluid Mixture, P. Sur and **B. Bhattacharjee**, Emerging Trends in Chemistry **May 13-15, 2009**, Department of Inorganic and Physical Chemistry, IISc., Bangalore, India.,

Dr. Tanurima Bhaumik

NATIONAL CONFERENCE ON "LIFE & WORKS OF SIR J C BOSE IN THE PERSPECTIVE OF MODERN SCIENCE & TECHNOLOGY" ORGANISED BY: FACULTY COUNCIL OF SCIENCE, JADAVPUR UNIVERSITY, KOLKATA 700032 DURING MARCH 20-21, 2009.

Dr. Partha Roy

International Symposium on Frontiers of Functional Materials, held on 06-07 January, 2009, organized by Department of Chemistry, University of Calcutta.

Dr. Jnan Prakash Naskar

1. Attended International Symposium on "Frontiers of Functional Materials" held on January 06-07, 2009 at the Department of Chemistry, University of Calcutta, Kolkata 700 009.
2. Attended National Conference on "Life & Works of Sir J C Bose in the Perspective of Modern Science" held on March 20-21, 2009 at Jadavpur University, Kolkata 700 032.

Dr. Sujoy Baitalik

1. Attended International Symposium on Frontiers of Functional Materials January 06-07, 2009 at the Department of Chemistry, University of Calcutta, Kolkata 700 009.
2. Attended National Conference on Life & Works of Sir J C Bose in the Perspective of Modern Science on March 20-21, 2009 at Jadavpur University, Kolkata 700 032
3. Attended National Symposium on Advances in Chemistry under the auspices of Centre for Advanced Studies (UGC) on November 05, 2008 at Jadavpur University, Kolkata

Dr Chandan Kumar Mondal

National conference on Life & Works of Sir J C Bose in the Perspective of Modern Science & Technology, Faculty of science, Jadavpur University, March 20-21, 2009.

Dr Arup Gayen

S. Colussi, A. Gayen, M. F. Camellone, M. Boaro, J. Llorca, S. Fabris and

A. Trovarelli; Nanofaceted Pd-O sites in Pd-O-Ce superstructures boost activity in the combustion of methane, 21st NAM (North American Catalysis Society Meeting), San Francisco, California, June 7-12, 2009.

C. Seminar/ Workshop/ Conference/ Symposium Organized:

Professor Rupendranath Banerjee

No	Name	Name of the Seminar	Place	Post
1	Professor Rupendranath Banerjee	NATIONAL SEMINAR ON ADVANCES IN CHEMISTRY	Department of Chemistry, Jadavpur University	Jt. Convenor

Professor Ambikesh Mahapatra

Sl. No.	Type of Organization/Name of Seminar/ Conference etc./Place/Duration
1	Treasurer International Conference on Soft Systems Central Glass & Ceramic Research Institute, Kolkata 13.02.2008-15.02.2008
2	Convener National Conference on Recent Advances in Photosciences Department of Chemistry, Jadavpur University 09.08.2008
3	Organizer National Conference on Application of Identified Chemical and Biological Technologies in Agriculture- '08 Jadavpur University 22.08.2008-23.08.2008
4	Organizer National Symposium on Advances in Chemistry Department of Chemistry, Jadavpur University 05.11.2008
5	Treasurer National Conference on Life & Works of Sir J C Bose in the Perspective of Modern Science & Technology Faculty council of Science, Jadavpur University 20.03.2009- 21.03.2009

D. Orientation Courses/ Refresher Courses Attended:

Dr. Saurabh Das

Attended the Refresher Course In Chemistry (January 02 – 22, 2009) on "Fundamentals and Frontiers in Chemistry" organized by the Department of Chemistry, Jadavpur University, Kolkata.

Dr. Jnan Prakash Naskar

1. Acted as a Resource Person in the Refresher Course in Chemistry entitled "Fundamentals And Frontiers In Chemistry" held at UGC-Academic Staff College, Department of Chemistry, Jadavpur University, Kolkata, 700 032 during 02.01.09 to 22.01.09.
2. Acted as a Resource Person in the Special Winter School 2008-2009 entitled "Outlook and Avenues of Modern Science" organized jointly by UGC-Academic Staff College, Jadavpur University & Faculty of Science, Jadavpur University, Kolkata 700 032 during 05.01.09 to 24.01.09

Dr. Sujoy Baitalik

Acted as a Resource Person in the Refresher Course on Chemistry: " Fundamentals

And Frontiers In Chemistry" held at UGC-Academic Staff College, Department of Chemistry, Jadavpur University, Kolkata, 700 032 during 02.01.09 to 22.01.09

Dr Chandan Kumar Mondal

One Refresher Course ("Fundamentals and Frontiers in Chemistry") conducted by UGC-Academic Staff College, Jadavpur University and Department of Chemistry, Jadavpur University from 02.01.2009 to 22.01.2009.

Dr Arup Gayen

UGC sponsored "Orientation Program" organized by Academic Staff College, JU, July 6th to Aug 1st, 2009.

E. Orientation Courses/Refresher Course Organized:

Professor Rupendranath Banerjee

No	Name	Name of the Seminar	Place	Post
1.	Professor Rupendranath Banerjee	FUNDAMENTALS AND FRONTIERS IN CHEMISTRY	Department of Chemistry, Jadavpur University	Coordinator

Professor Ambikesh Mahapatra

No.	Title of the Course	Duration	Place
1	Refresher Course on 'Chemistry: Trends and Perspectives'	02.01.2008-22.01.2008	Department of Chemistry Jadavpur University

4 A. Books/ Monographs etc. Published:

Professor Rupendranath Banerjee

No	Author	Name of the Monograph	Publisher
1	Ananda Banerjee & Rupendranath Banerjee	*SOUROSHAKTI*	West Bengal State Book Board
2	Rupendranath Banerjee	*RONG-ER-KATHA*	West Bengal State Book Board

Dr. Gourhari Maiti

Asymmetric Synthesis and Application of alpha-Amino Acids, Edited by Vadim A Soloshonok and Kunisuke Izawa (ACS Symposium series), **Oxford University Press, 2009,** Asymmetric Stereoselective Synthesis of Quaternary, a-Vinyl Amino Acids and their a-(2'Z-Fluoro)vinyl Congeners - Promising Candidates for PLP Enzyme Inactivation , *David B. Berkowitz, Kannan R. Karukurichi, Roberto de la Salud-Bea, Gourhari Maiti, Jill M. McFadden and Michelle L. Morris*

B. Articles Published in Journals:

Professor Kalyan Kumar Das

1. Theoretical studies of the low-lying states of $GeSi^+$. S. Chakrabarti and K.K. Das, *J. Phys. Chem. A 113 (2009) 10089*.
2. Electronic states of SiC^-: A theoretical study. A. Pramanik, A. Banerjee and K.K. Das, *Chem. Phys. Letts. 468 (2009) 124*.

3 Geometrical isomers of $[TEAH][Co(L^{Se})_2]xH_2O$: Synthesis, Structural, Spectroscopic, computational and kinetic studies. Md. Mijanuddin, A.D. Jana, A. Roy, M.G.B. Drew, K.K. Das, A. Pramanik and M. Ali, *Dalton Trans. 2009, 5164.*

4 Two highly unsymmetrical tetradentate Schiff base (N_3O) Copper(II) complexes: template synthesis, structural characterization, magnetic and computational studies. A. Ray, D. Maity, A. Pramanik, K.K. Das, M. Nandi, A. Bhaumik, M. Nethaji, S. Mondal, M. Mukherjee, M. Ali, *Polyhedron 2009 (in press).*

5 Electronic spectrum of SnC: A theoretical study. A. Pramanik and K.K. Das, J. Mol. Structure (Theochem), 2009 (in press).

6 Structural and spectroscopic properties of indium iodide and its monopositive ion. A. Banerjee and K.K. Das, J. Phys. Chem. A, 2009 (communicated).

Professor Ambikesh Mahapatra

1 Mechanism of interaction of DNA bases with dichloro-[1-alkyl-2- (naphthylazo) imidazole]palladium(II) complexes : A Cytosine case P K Ghosh, S Saha and A Mahapatra*, *International J of Chem Kinetics,* 41, 2009, p. 463- 472.

2 Catalytic effect of silver nanoparticle on electron transfer reaction: Reduction of $[Co(NH_3)_5Cl](NO_3)_2$ by iron(II) M Mukherjee and A Mahapatra*, *Colloids and Surfaces A* : Physicochemical and Engineering Aspects, 350, 2009, p. 1 - 7.

Professor Nitin Chattopadhyay

1 A. Chakrabarty, P. Das, A. Mallick and N. Chattopadhyay, **2008**, *Effect of Surfactant Chain length on the Binding Interaction of a Biological Photosensitizer with Cationic Micelles*, **J. Phys. Chem. B**, *112*, 3684-3692.

2 P. Das, A. Mallick, D. Sarkar and N. Chattopadhyay, **2008**, *Application of anionic micelle for dramatic enhancement in the quenching-based metal ion fluorosensing*, **J. Colloid Interface Sci.**, *320*, 9-14 (***Priority Communication***).

3 B. Haldar, A. Mallick and N. Chattopadhyay, **2008**, *Supramolecular inclusion in cyclodextrins: A pictorial spectroscopic demonstration*, **J. Chem. Educ.**, *85*, 429-432.

4 P. Das, D. Sarkar and N. Chattopadhyay, **2008**, *Fluorescence resonance energy transfer from a b-carboline analogue to a cationic photosensitizer in aqueous solution*, **Ind. J. Chem. A**, *47A*, 843-847.

5 D. Sarkar, P. Das and N. Chattopadhyay, **2008**, Fluorescence resonance energy transfer: A spectroscopic ruler, **ISRAPS Bulletin**, *20*, 23-33.

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7 P. Das, D. Sarkar and N. Chattopadhyay, **2008**, Photophysics of a b-Carboline Based Non-ionic Probe with Anionic and Zwitterionic Phospholipids, **Chem. Phys. Lipids**, *154*, 38-45.

8 P. Das, A. Mallick, D. Sarkar and N. Chattopadhyay, **2008**, *Probe-anchored Extended Self Aggregation of g-Cyclodextrin: Formation of Nanotubular Suprastructure*, **J Phys. Chem. C**, *112*, 9600-9603.

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Professor Chittaranjan Sinha

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8. "Copper-azide-thioarylazoimidazoles. Structure, Spectra, Redox Properties, Magnetism and Theoretical Interpretation" by P. Bhunia, D. Bannerjee, P. Datta, P. Raghavaiah, Alexandra M. Z. Slawin, J. Derek Woollins, J. Ribas and C. Sinha* Eur. J. Inorg. Chem., 2009 (in press).
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11. "Nickel(II)-Azido/Thiocyanato Complexes of 1-Alkyl-2-(arylazo)imidazole: Single Crystal X-ray Structure of $[Ni(Pai\text{-}Me)_2(N_3)_2]$ (Pai-Me = 1-methyl-2(phenylazo)imidazole)" by P. Bhunia, D. Sardar, K. K. Sarker, U. S. Ray, J. -S. Wu , T. -H. Lu and C. Sinha*, J. Coord. Chem., 2009, 62(4), 552-563.
12. "Tungsten(0)-carbonyl-azoimidazole complexes. Synthesis, structure, electrochemistry, photophysical studies, DFT and TD-DFT calculations of $[W(CO)_n(a\text{-}NaiR)]$ (n = 5, 4; a-NaiR = 1-alkyl-2-(naphthyl-a-azo)imidazole) and chelatative decarbonylation of $[W(CO)_5(a\text{-}NaiR\text{-}N)]$ to $[W(CO)_4(a\text{-}NaiR\text{-}N,N')]$" by P. Datta, Ashis Kumar Patra, and C. Sinha*, Polyhedron, 2009, 28, 525-533.

Professor Samaresh Bhattacharyya

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Professor Swapan Kr. Bhattacharya

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Professor Subhas Chandra Bhattacharya

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3. Role of hydrogen bonding on the Spectroscopic properties of Thiazolidinedione derivatives in homogeneous solvents; A. Sarkar, P. Banerjee, Sk. U. Hossain, S. Bhattacharya, **S. C. Bhattacharya**, *Spectrochimica Acta; Part A*, 72, **2009**, 1097-1102.
4. Substituent Effect on the Emission behavior of Thiazolidinedione derivatives in cationic and anionic micellar media; A. Sarkar, P. Banerjee, **S. C. Bhattacharya**, *J. Colloid. Interface. Sci*, 329, 2009, 160-166.
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Professor Rina Ghosh

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Professor Subrata Mukhopadhyay

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Dr. Biplab Bhattacharjee

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Dr. Subrata Koner

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Dr. Gourhari Maiti

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Dr. Soumen Ghosh

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11. "Ternary Mixtures of Alkyltriphenylphosphonium Bromides (C_{12}TPB, C_{14}TPB and C_{16}TPB) in Aqueous Medium: Their Interfacial, Bulk and Fluorescence Quenching Behaviors", Gargi Basu Ray, **Soumen Ghosh** and Satya P. Moulik, **J. Chemical Sciences** (**in press**).

12. "Interaction of cationic hydroxyethylcellulose (JR 400) and cationic hydrophobically modified hydroxyethylcellulose (LM200) with the amino-acid based anionic amphiphile sodium N-dodecanoyl sarcosinate (SDDS) in aqueous medium", Abhijit Dan, **Soumen Ghosh** and Satya P. Moulik, **Carbohydrate Polymers (accepted)**.

Dr. Shouvik Chattopadhyay

1 Nickel(II) complexes of terdentate or symmetrical tetradentate Schiff base: Evidence of the influence of the counter anions in the hydrolysis of the imine bond in Schiff base complexes. S. Chattopadhyay, P. Chakraborty, M. G. B. Drew, A. Ghosh, Inorg. Chim. Acta, 362 (2009) 502.

2 Syntheses, characterization and X-ray crystal structures of Ni(II) complexes of tridentate monocondensed and tetradentate dicondensed Schiff bases. D. Maity,

S. Chattopadhyay, A. Ghosh, M. G. B. Drew, G. Mukhopadhyay. Polyhedron 28 (2009) 812.

Dr. Jnan Prakash Naskar

1. M. G. B. Drew, D. Das, S. De, **J. P. Naskar** and D. Datta Solid state annular tautomerism in a molecule containing two imidazole moieties **J. Chem. Crystallogr.** 38 (2008) 507-512
2. S. Chowdhury, S. Gou, P. Chakraborty and **J. P. Naskar** A planar 2,2'-dipyridylammonium salt: synthesis and structure **J. Indian Chem. Soc.** 85 (2008) 813-817
3. **J. P. Naskar** and S. Chowdhury Molecular structure of an oxorhenium(V) '3+1' mixed ligand complex **J. Indian Chem. Soc.** 86 (2009) 1033-1037

Dr. Saubhik Haldar

1. M. Charnley, K. I. Smith, **S. Haldar**, R. Elliott, S. l. McAurther, N. H. Williams and J. W. Haycock. Generation of Bioactive Materials with rapid Self-Assembling Resorcinarene Peptides , **Advanced Materials**, 21 (28), (2009) 2909-2915.

Dr. Saurabh Das

1. Electrochemical reduction of Sodium 1,4-dihydroxy 9,10-anthraquinone-2-sulphonate in aqueous and aqueous-dimethyl formamide mixed solvent. Partha Sarathi Guin, Saurabh Das and P. C. Mandal. *International Journal of Electrochemical Science,* Vol 3, 1016-1028, 2008.
2. Formation and characterization of Ni(II) complex of sodium 1, 4-dihydroxy-9, 10-anthraquinone-2-sulphonate, an analogue of the core unit of anthracycline antibiotics, by different spectroscopic techniques. Partha Sarathi Guin, Saurabh Das and Parikshit C. Mandal. *International Journal of Pure & Applied Chemistry*, Vol 3, No 4, 293-300, 2008.
3. Influence of Ni(II) and Fe(III) complexes of 1,2 dihydroxy 9,10 anthraquinone on the modification in calf thymus DNA upon gamma irradiation. Saurabh Das and Parikshit C. Mandal. *Radiation Physics Chemistry*, Vol 78, 37–41, 2009.
1. Studies on the formation of a Co(II) complex with 2-hydroxy phenyl azo-2′-naphthol in aqueous solution and solid state with potential radioprotection properties. Tathagata Deb, Sanjay Khamrai, Partha Sarathi Guin, Manju Bikash Saha, Parikshit C. Mandal and Saurabh Das*, *International Journal of Pure & Applied Chemistry*, Issue 2, Volume 4, 2009.
2. Four new dinuclear Cu(II) hydrazone complexes using various organic spacers: syntheses, crystal structures, DNA binding and cleavage studies and selective cell inhibitory effect towards leukemic and normal lymphocytes. Sambuddha Banerjee, Susmita Mondal, Soma Sen, Saurabh Das, David L. Hughes, Corrado Rizzoli, C´ edric Desplanches, Chitra Mandal and Samiran Mitra, *Dalton Transactions*, Vol. 34 6849-6860, 2009.
3. Sodium 1, 4–dihydroxy-9, 10–anthraquinone–2-sulphonate interacts with calf thymus DNA in a way that mimics anthracycline antibiotics: An electrochemical and spectroscopic study.

Partha Sarathi Guin, Saurabh Das* and P. C. Mandal, *Journal of Physical Organic Chemistry doi.10.1002/poc.1624 (www.interscience.wiley.com)*, 2009.

7 Studies on the formation of a complex of Cu(II) with sodium 1,4-dihydroxy-9,10-anthraquinone-2-sulphonate– an analogue of the core unit of anthracycline anticancer drugs and its interaction with calf thymus DNA. Partha Sarathi Guin, **Saurabh Das** and P. C. Mandal, *Journal of Inorganic Biochemistry doi:10.1016/j.jinorgbio.2009.09.020, 2009.*

Dr. Partha Roy

1. "Selective Zinc(II)-Ion Fluorescence Sensing by a Functionalized Mesoporous Material Covalently Grafted with a Fluorescent Chromophore and Consequent Biological Applications" Krishanu Sarkar, Koushik Dhara, Mahasweta Nandi, **Partha Roy**, Asim Bhaumik and Pradyot Banerjee, **Advanced Functional Materials**, 2009, 19, 223–234.
2. "Synthesis, Characterization and Fluorescence Property of Dinuclear admium(II) Complexes" **Partha Roy**, **Journal of Coordination Chemistry**, 2009, 7, 2003-2011.
3. "Ferromagnetic exchange coupling in a new bis(μ-chloro)-bridged copper(II) Schiff base complex: Synthesis, structure, magnetic properties and catalytic oxidation of cycloalkanes" Santarupa Thakurta, **Partha Roy**, Georgina Rosair, Carlos J. Gómez-García, Eugenio Garribba, Samiran Mitra, **Polyhedron,** 2009, 28, 695–702.
4. "Synthesis, Characterization and Selective Fluorescent Zinc(II) Sensing Property of Three Schiff-base Compounds" **Partha Roy**, Koushik Dhara, Mario anassero and Pradyot Banerjee, **Inorganica Chimica Acta,** 2009, 362, 2927–2932.
5. "Synthesis, Characterization and Fluorescence Properties of Hexanuclear Zinc(II) complexes" **Partha Roy**, Mario Manassero, Koushik Dhara and Pradyot Banerjee, **Polyhedron**, 2009, 28, 1133–1137.
6. "Structural Aspects of a New Copper(II) Schiff Base Complex with Ferromagnetically Coupled Cubane Core: Magnetic Properties, DFT Studies and Catalytic Activity" Santarupa Thakurta, **Partha Roy**, Ray J. Butcher, M. Salah El Fallah, Javier Tercero, Eugenio Garribba, and Samiran Mitra, **European Journal of Inorganic Chemistry,** 2009, 4385-4395.
7. "Four μ_4-oxo Bridged Copper(II) Complexes: Magnetic Properties and Catalytic Applications in Liquid Phase Partial Oxidation Reactions" **Partha Roy**, Mahasweta Nandi, Mario Manassero, Mauro Riccó, Marcello Mazzani, Asim Bhaumik and Pradyot Banerjee, **Dalton Transactions,** 2009, 9543–9554.

Dr. Tapan Kumar Mondal

1. P. Pratihar, **T. K. Mondal**, A. K. Patra and C. Sinha, *Inorg. Chem.*, **2009**, *48*, 2760.
2. Dipanwita Das, **Tapan Kumar Mondal**, Shaikh M. Mobin, and Goutam Kumar Lahiri, *Inorg. Chem.*, **2009**, *48*, 9800.

3 **T. K. Mondal**, J. -S. Wu, T.-H. Lu, Sk. Jasimuddin and C Sinha, *J. Organomet. Chem.*, **2009**, *694*, 3518.

4 P. Datta, S. K. Sarkar, **T. K. Mondal**, A. K. Patra and C. Sinha, *J. Organomet. Chem.*, **2009,** *694*, 4124.

5 Dipanwita Das, Atanu Kumar Das, Biprajit Sarkar, **Tapan Kumar Mondal**, Shaikh M. Mobin, Jan Fiedler, Stanislav Záliš, Francisco A. Urbanos, Reyes Jiménez-Aparicio, Wolfgang Kaim and Goutam Kumar Lahiri, *Inorg. Chem.*, **2009 (accepted).**

6 **Tapan Kumar Mondal,** Shyamal Kumar Sarkar and Chittaranjan Sinha, *J. Indian Chem. Soc.*, 2009, *86*, 213.

Dr. Sujoy Batalik

1 **Sujoy Baitalik**, Supriya Dutta, Papu Biswas, Ulrich Flörke, Eberhard Bothe and Kamalaksha Nag "Structural, Spectroscopic, and Proton-Coupled Electron Transfer Behavior of Pyrazolyl-3,5-bis(benzimidazole)-Bridged Homo-and Heterochiral $Ru^{II}Ru^{II}$, $Os^{II}Os^{II}$, and $Os^{II}Ru^{II}$ 2, 22 -Bipyridine Complexes" *European Journal of Inorganic Chemistry*, **2009,** *00, 0000.*

Dr Arup Gayen

S. Colussi, **A. Gayen**, M. F. Camellone, M. Boaro, J. Llorca, S. Fabris and A. Trovarelli; Nanofaceted Pd-O Sites in Pd-Ce Surface Superstructures: Enhanced Activity in Catalytic Combustion of Methane, ***Angew. Chem. Int. Ed.*** *48*, 8481 (**2009**).

5 Collaborative Programmers:

Professor Rupendranath Banerjee

Collaborative Research Scheme with HALLIBURTON ENERGY SERVICES, USA.

Professor Chittaranjan Sinha

(a) Prof. T.-H. Lu, National Tsing Hua University, Taiwan

(b) Prof. J. D. Woollins, University of St-Andrews, UK

(c) Prof. J. Ribas, University of Barcelona, Spain

(d) (d) Prof. Elena Lopez Torres, Spain

Dr. Saurabh Das

One collaborative programme is with Dr. Gopal Chakraborty of the Department of Biotechnology and B. C. Guha Centre for Biological Sciences and the other with Dr. Santanu Pal of the Department of Botany, Gurudas College both with regard to biological cell line study.

Dr. Gourhari Maiti

Studies towards the synthesis of ABC tricycles of Taxol: In the group of Professor Joelle Prunet, Ecole Polytechnique, Palaiseau, France, from January-October, 2009.

6 Major Achievements

- Professor Rupendranath Banerjee elected Council member for West Bengal Science Academy
- Professor Samaresh Bhattacharya has been accepted as a Fellow of the West Bengal Academy of Science and Technology in 2007.
- The Department of Chemistry has been granted a Single Crystal X-ray Diffractometer under the DST – FIST programme, (Govt. of India)
- The Department of Chemistry has been granted a Electron Paramagnetic Resonance Spectrometer under the DST – FIST programme, (Govt. of India)
- The Department of Chemistry has been granted a Nanosecond Fluorimeter under the PURSE programme, (Govt. of India)
- The Department of Chemistry has been granted a CD Spectrophotometer under the CASP programme, (Govt. of India)

Geological Sciences

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This department has been awarded CAS-Phase V by the U.G.C. This is a rare recognition for any department of Indian universities.

A national seminar on "Recent trends of Structural Geology" has been organized with Prof. S. Sengupta as coordinator, on the first death anniversary of Prof. S.K. Ghosh- the Legendary Scientist and a former teacher of this department.

MS. A. Mallick, a research fellow of this department, was awarded the prestigious SP. Mukherjee Fellowship by CSIR. On the basis of their performance in the NET examination 2009, three research fellows of this department have been nominated for the S.P. Mukherjee award.

Our students have done exceedingly well in the NET examination 2009 and Geologists' examination 2009 conducted by CSIR and UPSC, India respectively.

Dr. Anupam Ghosh has been selected as the key person for the local chapter of the international body AAPG. Dr. Ghosh has organized special Seminar in the field of Petroleum Geology in which eminent scientists of this discipline delivered lectures.

Prof. S. Sengupta has been selected a committee member for (a) FIST program, DST. Gov. of India, (b) Indian National Science Academy (INSA), (c) S.S. Bhatnagar Prize, CSIR and (d) NCAOR Goa

Prof. S.B. Bardhan will deliver the Key-note address in the national seminar " Plate tectonics……. biotic response" to be held in the Department of Geology, Aizwal, Mizoram.

Prof. R.K. Mazumder presented papers in an international conference (IGS-TH 2009) in Thailand

Dr. S.K. Mandol has been awarded NORAD Fellowship (Norway). Dr. Mandal delivered lectures in the Goldsmidt Conference.

Dr. D.C. Pal has been awarded INSA-DFG Fellowship. Dr. Pal also delivered lectures in the international seminar on fluid inclusions (ACROFI).

Dr. Subir Sarkar has delivered special lectures on 'Sequence Stratigraphy' for the scientists of the BSIP Institute (funded by the Department of Science and Technology, Govt. of India). Dr. Sarkar also gave a series of lectures for the officers of CAIRN India. He serves as a member of the NET examination committee of CSIR.

Teachers of this department are engaged in the following research projects that are funded by national agencies:

1. Dr. Sadhona Mahato :

   "Time – space evolution …south central Rajasthan" (D.S.T. Govt. of India)

2. Dr. S. Mandol:

   "Magnetic Anisotropy …Eastern Ghats Belt of India" (D.S.T. Govt. of India) "Combined palaeomagnetic …India" (UGC)

3. Prof. S. Bardhan:

   "Mass extinction…of Kutch, Gujrat" (D.S.T. Govt. of India)

4. Prof. P. Sengupta and Dr. S. Sanyal:

   "P-T-fluid regime…Purulia" (DAE, Govt.of India)

5. Dr. S. Sarkar:

   "Shallow marine event beds…central India" (CSIR)

   "Imprints of …Sevok Rangpo Transect" (D.S.T)

6. Prof. T.K. Baidya :

   "Vanadiferous…Sukinda" (SAIL)

Teachers and Research students of this department continued the

collaborative research with the scientists from the following international institutes:

- Hokkaido University, Japan
- Hiroshima University, Japan
- Toyoma University, Japan
- Yansli University, South Korea
- Bonn University, Germany
- Cologne University, Germany
- Max Plank Institute, Germany
- Liverpool University, U.K.
- University of Texas at Austin, USA
- Yale University , USA
- The Rensseler Centre of Applied Geology (New York), USA
- Rajshahi University, Bangladesh.
- Arizona State University, Tucson, USA
- University of Pretoria

INSTRUMENTATION SCIENCE

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1. A. **Courses Offered**:

   Name of the Course : M.Sc. (Instrumentation)

   Duration of the Course : 2 years (4 semester)

   No of Students Enrolled : 10 in each year

   B. Number of Faculty Members: 3

   Professor–2, Lecturer–1, Emeritus Professor-1

2. A. Area of Research Activities: (Board Areas)

   Analytical Instrumentation, Plasma Science & Technology, Laser Ablated Plasma, Plasma Fusion Energy, Biochemical studies of Medicinal plants, Nanomedicinal materials, Nanocrystalline materials, R.F. Plasma CVD for

c-BN, GaN based photoluminescent devices, Carbon nanotubes, Gas sensors.

B. Major Research Project: (Departmental/Individual, Name of the Project/ Funding Agency)

Name of the Teacher Title of the Project Funding Agency

1. i) Prof. R. Bhar Prof. M. Khan Prof. A.K. Pal Prof. H.C. Pant (Retiredd Scientist CAT Indore). Synthesis of cBN thin film by Plasma assisted Pulsed Laser Ablation Techniques and Their Characterization.

   ii) Dr A.K.Ghosh. Benzodiazepine induced changes in fluidity of RBC membrane Purse Program of DST. Jadavpur University

2. Prof. M. Khan Prof. M.R. Gupta Dr. M.K. Srivastava (BARC) Prof. R. Bhar Fluid Instabilities in spherical targets. DST,Govt. of Indiaduration 2009-2012

3. Prof. M. Khan Prof. R. Bhar Prof. M.R. Gupta Prof. S. Sarkar(CU) Prof. N. Chakraborty (SINP) Investigation of the characteristics of wave propagation and Jeans instability in a complex plasma in presence of secondary electron emission from dust grains DAE Govt. of Indiaduration 2009-2012

4. Prof. M. Khan Prof. M.R. Gupta Prof. R. Bhar Dr. Samiran Ghosh (CU) Studies of effects of dust charge variation on nonlinear collective phenomena in a dissipative dusty plasma. CSIR, Govt. of India.duration 2009-2012

5. Prof. A.K. Pal Prof. R. Bhar 'Polycrystalline InP films: Synthesis and characterization' DSTGovt. of Indiaduration 2008-2011

6. Prof R. Bhar Dr V. Ganesan Dr T. Guha Atomic Force Microscopy and Confocal Microscopic Investigation of Biomaterials Under Physiological and Diseased Conditions UGC-DAE-CSR, Indoreduration 2007-2010

3. A. Invited Lectures Delivered/Session Chaired:

(Name of the Teacher, Type of the Seminar/Conference etc., Place, Duration)

Prof R Bhar

National Workshop on Electron Microscopes : Instrumentation and their Application in Material Science & Biological Science. Dept. of Instrumentation Science, JU November 23-25, 2009 Three days

Prof M. Khan

Micro Seminar on Nonlinear Phenomena Calcutta University April 30, 2009 One day

Prof A.K.

Pal Emeritus Professor 1.XXX National Conference on Elctron Microscopy and Allied Fields, January 17-19, 2009, EMSI, Jhansi, Three Days

2. Current Trends in Nano Science & Technology, ABV-Indian Institute of Information Technology & Management Indo-Sweden Collaboration January 15-26, 2009, Three days 3. International Workshop on Tailor Made nanometerials and Applications for Chemical & Biosensors March 20-23, 2009 Four days

B. Seminar/Workshop/Conference/Symposium Attended:

(Name of the Teacher, Name of the Paper Presented (if any)

Name of the Seminar, Place, Duration)

Name of Teacher Conference/Workshop/Place/Duration/Paper/Invited talk

2. Prof. Manoranjan Khan International Conference on Physics of Dusty Plasma held in Pondelgade(Portugal) during May 2008

C. Seminar/Workshop/Conference/Symposium Organized:

Name of the Teacher acted as co-ordinator /convenor/Sponsored by Name of Workshop/Training Programme/Organized by Duration

Convener : Prof R. Bhar

UGC unassigned Grant, JU, National Workshop on 'Electron Microscopy and their applications in material Science and Biological Science' Dept. of Instrumentation Science, JU, Nov. 23-25, 2009

Jt. Conveners : Prof M. Khan & Dr A.K.Ghosh

Prof M. Khan Jointly organizedWith Centre for Plasma Studies : Micro Seminar on Nonlinear Phenomena. Dept. of Instrumentation Science, JU Aug. 27, 2009

D. Orientation Courses/Refresher Courses Attended :

(Name of the Teachers, Title of the Course, Place, Duration) - NIL

E. Orientation Courses/Refresher Course Organized:

(Name of the Teachers, Title of the Course (if any) Duration, Place)

Name of the Teacher : Title of the Course Duration Place

Course Co-ordinator : Prof R.Bhar

Analytical Instrumentation and their role in Research February 2 - 21 (three weeks), 2009 Department of Instrumentation Science, JU

4 A. Books/Monographs etc. Published:

(Name of the Teacher, Name of the Book, Name of the Publisher)

B. Articles Published in Journals:

(Name of the Teacher, Name of the Article, Name of the Journal, Date of Publication, Volume)

(i) Prof. Manoranjan Khan:

Publication in Referred Journal:

1. Effect of compressibility on the Rayleigh-Taylor and Richtmyer-Meshkov instability induced nonlinear structure at two fluid interface.

M.R. Gupta, S. Roy, **Manoranjan Khan**, H.C. Pant, S. Sarkar, M.K. Srivastava Phys. Plasma 16, 032303 (2009)

2. Intermediate term periodicities in relativistic solar electron fluences during solar cycle 22 and 23.

   P. Chaudhury, **Manoranjan Khan**, P.C. Roy.

   Advances in Space Research Vol. 43(2), 297-307 (2009).

3. Intermediate term periodicities in sunspot areas during solar cycles 22 and 23.

   P. Chaudhury, **Manoranjan Khan**, P.C. Roy.

   Monthly Notices of Royal Astronomical Society, Vol. 392 (3), 1159-1180 (2009).

4. Short term periodicities in Sunspot activity during Descending phase of cycle 23.

   P. Chaudhury, **Manoranjan Khan**, P.C. Roy.

   Solar Physics (accepted for publication) 2009.

(ii) Prof R. Bhar

Publication in Referred Journal:

1. Indium phosphide films prepared by flash evaporation technique: synthesis and characterization, R. N. Gayen, S. N. Das, S. Dalui, R. Paul, **R. Bhar** and A. K. Pal, Thin Solid Films (2009)
2. Synthesis and characterization of composite films of silver nanoparticles embedded in DLC matrix prepared by plasma CVD technique, R. Paul, R.N. Gayen, S. Hussain, V. Khanna, **R. Bhar,** and A.K. Pal, Euro. Phys. J. Appl. Phys., 47 (2009) 10502

(iii) **Publication of Prof. A.K. Pal (Emeritus Professor) in Referred Journal**

Articles Published in Journals:

1. Characterization of nanocrystalline gold/DLC composite films synthesized by plasma CVD technique, R. Paul, S. Hussain and **A K Pal**, Applied Surface Science 255 (2009) 8076–8083
2. Determination of optical constants of thin films from transmittance trace only, S. R. Bhattacharyya, R. N. Gayen, R. Paul and **A. K. Pal**, Thin Solid Films, 517 (2009) 5530
3. Modulation of field emission properties of vertically aligned ZnO nanorods with aspect ratio and number density, R.N. Gayen, S. Dalui, A. Rajaram and A. K. Pal, Applied Surf. Sci 255 (2009) 4902
4. Indium phosphide films prepared by flash evaporation technique: synthesis and characterization, R. N. Gayen, S. N. Das, S. Dalui, R. Paul, R. Bhar and **A. K. Pal,** Thin Solid Films (2009)
5. Grain boundary scattering in silicon doped polycrystalline GaN films

prepared by r.f. sputtering, S.R. Bhattacharyya and **A.K.Pal**, Ind. J. Pure & Appl. Phys. 47 (2009)

6. Optical properties of Si-doped GaN nanocrystals in SiO_2/GaN/SiO_2 thin film structure, S.N. Das, S. R. Bhattacharyya, R. N. Gayen and **A.K. Pal**, J.Phys.D: Appl. Phys. 42 (2009) 135402

7 Synthesis and characterization of composite films of silver nanoparticles embedded in DLC matrix prepared by plasma CVD technique, R. Paul, R.N. Gayen, S. Hussain, V. Khanna, R. Bhar, and **A.K. Pal**, Euro. Phys. J. Appl. Phys., 47 (2009) 10502

5 Collaborative Programmes (Ongoing):

Name of the Teacher/Collaborating Institute & Name of Scientist/Area of Research/Objective

Prof. Manoranjan Khan

An agreement signed between Jadavpur University, Kolkata (India) & University degli Studi di Milano – Bicocca (Italy) in Feb/March, 2009. Agreement would be valid for 3 years.

Objectives:

i) Promote and to strengthen scientific and academic cooperation by means of exchanging Professors, researchers, as well as student and other staff.

ii) Strengthen relationship in different thematic research areas and to undertake joint research activities, organize conferences and symposia on topics of common interest.

Prof R. Bhar

UGC-DAE –CSR, Indore Centre, A Collaborative Scientific Research
Title of the ongoing project :'Atomic Force Microscopy and Confocal Microscopic Investigation of Biomaterials Under Physiological and Diseased Conditions'

6. Major Achievements:

Fabrication of a prototype for LPG Sensors

LIFE SCIENCE & BIO-TECHNOLOGY

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Int :2195/2466
H.O.D. :Dr. Ratan Gachhui
E-mail :hod@lifescience.jdvu.ac.in

1 A. Courses Offered :

Name of the Course	Duration of the Course	No. of Students Enrolled
M.Sc.(Biotechnology)	2 years	40

B. Number of Faculty Members :

Professors	Readers	Sr.Lecturer/Lecturer
3 (1 On lien)	Sanctioned 2 (vacant)	Nil

2 A. Area of Research Activities : (Broad Areas)

1. Microbial Biodiversity & Microbial Biotechnology
2. Molecular Biology & Gene Technology
3. Cell Culture & Immunology

B. Major Research Project :

Investigators	Name of Project	Funding Agency
P.Karmakar	Role of arsenic in AKT signaling pathway	ICMR
P.Karmakar	Study on Akt signaling pathway in Hepato-carcinoma cells"	UGC
P.Karmakar	"Modulation of WRN protein in Aged people	CSIR
P.Karmakar	To investigate the mechanisms of High-LET induced apoptosis in human cells	UGC-DAE
Prof.Subrata Pal	Molecular mechanism of microbial metal reduction at high temp"	DST
Dr.R.Gachhui	Characterization of a basidiomycetous yeast Cryptococcus sp strain RY1 isolated from Kombucha tea	DST (PURSE)

Dr.R.Gachhui	Biochemical and biophysical characterization of levansucrase secreted by *Acetobacter nitrogenifigens*	DST
Dr.R.Gachhui	Culture independent exploration of Kombucha tea and its application	CSIR

3 A. Invited Lectures Delivered/Session Chaired:

Name of the Teacher/Type of Participation/Name of the Seminar/Conf Place/Duration

B. Seminar/Workshop/Conference/Symposium Attended:

Name of the Teacher/Name of the Paper Presented/Name of the Seminar Place/Duration

Dr. Ratan Gachhui

Characterization of levansucrase and levan produced by *Acetobacter nitrogenifigens* 2nd International Conference on Acetic Acid Bacteria Nagoya, Japan November 11-14, 2008

C. Seminar/Workshop/Conference/Symposium Organized:

Name of the Teacher/Name of the Paper Presented/ Name of the Seminar Place Duration

Parimal Karmakar

Alprazolam Induces Programmed Necrosis in Presence of Caffeine. International symposium on perspective of cell signaling and Molecular medicine held Kolkata Nov 27-29, 2008

Parimal Karmakar

Constitutive activation of Akt is responsible for the etoposide –resistance character of HepG2 cells International symposium on Emerging challenges and approaches in Cancer Biology, Bangalore Feb21-24, 2009

Ratan Gachhui

Characterisation of an endophytic nitrogen fixing bacteria National conference on application of identified chemical and biological technologies in agriculture Kolkata 2008

D. Orientation Courses/Refresher Courses Attended :

Name of the Teacher/Title of the Course/Duration Place

E. Orientation Courses/Refresher Courses Organized :

Name of the Teacher Title of the Course (if any) Duration Place

4 A. Books/Monographs etc. Published :

Name of the Teacher Name of the Book Name of the Publisher

B. Articles Published in Journals:

Name of the Teacher Name of the Article Name of the Journal Date Volume

Saha B, Mukherjee A, Samanta S, Saha P, Ghosh AK, Santra CR, Karmakar P. Caffeine augments Alprazolam induced cytotoxicity in human cell lines. Toxicology in vitro, 2009 23(6):1100-9

Biswarup Saha, Ananda Mukherjee, Chitta Ranjan Santra, Atiskumar Chattopadhyay, Amar Nath Ghosh , Utpal Choudhuri , Parimal Karmaka Alprazolam intercalates into DNA Journal of Biomolecular Struct. & Dyn. 2009; 26(4):421-9.

Meyyappan Arumugam, Anindita Mitra, Parasuraman Jaisankar, Shreya Dasgupta, Tuhinadri Sen, Ratan Gachhui, Ujjal Kumar Mukhopadhyay and Joydeep Mukherjee Isolation of an unusual metabolite, 2-allyloxyphenol from a marine actinobacterium, its biological activities and applications Applied Microbiology and Biotechnology 2009

Sambuddha Banerjee, Susmita Mondal , Writachit Chakraborty, Soma Sen, Ratan Gachhui, Ray J. Butcher, Alexandra M. Z. Slawin, Chitra Mandal, Samiran Mitra Syntheses, X-ray crystal structures, DNA binding, oxidative cleavage activitiesand antimicrobial studies of two Cu(II) hydrazone complexes Polyhedron 2009

Sreyashi Sarkar, Malay Saha, Debashis Roy, Parasuraman Jaisankar, Satadal Das, Lalita Gauri Roy, Ratan Gachhui, Tuhinadri Sen, Joydeep Mukherjee Enhanced Production of Antimicrobial Compoundsby Three Salt-Tolerant Actinobacterial Strains Isolated From the Sundarbans in a Niche-Mimic Bioreactor; Marine Biotechnology 2008

5 Collaborative Programme:

Dr.P.Karmakar, Reader of this Department was invited as an exchange Scientist programme at NIA/NIH, Baltimore, USA.

6. Major Achievements:

MATHEMATICS

Phone :+ 91-33-2414-6717
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E-mail :hod@math.jdvu.ac.in

1 A. Courses Offered :

Name of the Course	Duration of Course	No. of Students
B. Sc. (Hons.)	6 semesters (3 years)	184
M. Sc. (Day)	2 years	101
M. Sc. (Evening)	3 years	108

B. Number of Faculty Member : 29

2 A. Area of Research Activities : (Broad Areas**)**

Mathematical Physics, Bio-Mathematics, Operations Research, Fluid Mechanics, Solid Mechanics, Computer Science, Statistics, Graph Theory, Topology, Measure Theory, Functional Analysis, Algebra, Algebraic Geometry, Differential Geometry.

B. Major Reaseach Project :

Name of the P.I.	Title of the Project	Funding Agency
Prof. S. Chakraborty	Cosmological studies in Brane World Scenario.	CSIR, Govt. of India
Dr. S. Banerjea	Water wave propagation in the presence of Obstacles	DST
Dr. Farook Rahaman	Topological defects, wormholes and cosmological models in alternative theories of gravity.	SERC FAST TRACK PROPOSAL FOR YOUNG SCIENTISTS, DST
Dr. N. Bairagi	Predator - Prey Dynamics: The Role of Structural Complexity, Prey Heterogeneity and Refuges	DST
Dr. P. K. Roy	Biodynamical Model of HIV: A Control Based Theoretical Approach	DST
Dr. Samik Ghosh	Probe interval graphs and its application to physical mapping of D.N.A.	DST(PURSE)

Name of the P.I.	Title of the Project	Funding Agency
Dr. Gopal Chandra Shit	Numerical Investigation of some flow problems of Bio-fluid dynamics'. Application to Physiological System.	DST(PURSE)
Dr. Priti Kumar Roy	Mathematical modeling on Psoriatic Dynamics and Analysis of the Behavioral Pattern of the Disease	DST(PURSE)
Dr. A. Lahiri	Studies in Thermoelasticity and Generalized Thermoelasticity	DST(PURSE)
Dr. Sudeshna Banerjea Prof Subenoy Chakraborty Dr. Alaka Das	Computational Fluid Dynamics	DST(PURSE)
Dr. Subhas Chandra Mandal	Waves in elastic media	DST(PURSE)
Dr. Sujit Kumar Sardar	Study of fuzzy algebra of gamma semi groups	DST(PURSE)
Dr. Pratulananda Das	Study of certain types of convergence of sequences and double sequences	DST(PURSE)
Dr. Kallol Pal	Min-max equality and other relevant inequalities in operator Trigonometry	DST(PURSE)
Dr. A. Bhattacharyya Dr. F. Rahman Prof. S. Chakraborty Prof. P. K. Sen	Geometry,Physics,Biology	DST(PURSE)
Dr. A. Bandyopadhyay	Nonlinear waves process in Nonthermal Plasma Including Dusty and Complex Plasmas	DST(PURSE)
Dr. S. Debnath	Study of Non Hermitian Hamiltonians with Real Spectrum	DST(PURSE)
Prof. M. Gupta Prof. G. Sen	Designing Coupler for Different Models to be implemented in Parallel Machine	DST(PURSE)

Name of the P.I.	Title of the Project	Funding Agency
Prof. Prakash Chandra Mali	Morphological Study of Multidimensional Signals	DST(PURSE)
Dr. Bibhas C. Giri	Development of Mathematical Models for Managing Uncertainty in the Supply Chain	DST(PURSE)

3 A. Invited Lectures Delivered / Session Chaired :

Name of the Teacher	Type of Participation	Name of the Seminar/ Conferences	Place	Duration

Prof. S. Chakraborty

Delivered Lecture One day workshop on "Recent Trend in Physics and the role of Mathematics" Dept. of Mathematics,J.U. 16thAugust,2009

Prof. S. Chakraborty

Invited Talk National Seminar on "Advances in "Nonlinear systems (ANLS-2009)" Dept. of Mathematics, Visva-Bharati 21-23rd February, 2009

Prof. S. Chakraborty

Invited Talk UGC sponsored state level seminar on "Application of Mathematics in different fields of Science" Dept. of Mathematics, Vivekananda College, Thakurpukur, Kolkata - 63 27th February, 2009

Prof. S. Chakraborty

Delivered Lecture Refreshers' Course on "Mathematical Analysis and its application "Dept. of Mathematics, J.U. 16th Feb – 7th March, 2009

Prof. S. Chakraborty

Delivered Lecture Refreshers' Course on "Basic Theory of Differential Geometry" Dept. of Mathematics, J.U. 16th Feb – 7th March, 2009

Prof. S. Chakraborty

Delivered Lecture Refreshers' Course on "Lectures on Partial differential Equation" Dept. of Mathematics, J.U. 16th Feb – 7th March, 2009

Dr. Arindam Bhattacharyya

Chaired a session International Conference Differential Geometry-Dynamical Systems (DGDS - 2009) University Politehnica of Bucharest, Romania 8th – 11th October, 2009

Dr. Arindam Bhattacharyya

Invited Talk International Conference Differential Geometry-Dynamical Systems (DGDS - 2009) University Politehnica of Bucharest, Romania 8th – 11th October, 2009

Dr. Sujit Kumar Sardar

Paper Presentation 5-th Asian Mathematical Conference, AMC 2009 Kualalumpur, Malaysia 22nd–25th June, 2009

Dr. Sujit Kumar Sardar

Invited Talk ICMA-MU-2009(International Conference on Mathematics and Applications) Bangkok, Thailand 17-19th December, 2009

Dr. Sujit Kumar Sardar

Invited Talk ICAG-2009 (International Conference on Algebra & Geometry) Phuket, Thailand 20-22nd December, 2009

Dr. Sujit Kumar Sardar

Delivered Lecture Refresher Course(for College & University Teachers) Department of Mathematics and Academic Staff College of Jadavpur University, Kolkata. 16th February-7th March, 2009

Prof. K.S. Chaudhuri

Invited Lectures AICTE / MHRD sponsored Winter School on Probability, Statistics and Optimization Methods with Applications Department of Mathematics, National Institute of Technology, Durgapur – 713209, India. 22nd – 23rd January, 2009

Prof. K.S. Chaudhuri

Key Note Address One-day colloquium on "Mathematical Biology and Ecology" Centre for Mathematical Biology and Ecology, Department of Mathematics, Jadavpur University, Kolkata – 700032 20th February, 2009

B. Seminar/Workshop/Conference/Symposium Attended :

Name of the Teacher Type of Participation Name of the Seminar/ Conferences Place Duration

Dr. S. Chakraborty

Visiting Associate Associateship Programme IUCAA, Pune 2-22May, 2009

Dr. Arindam Bhattacharyya

Paper Presentation National Conference of the Tensor Society of India Rishikesh, Uttarakhand, India 2-3rd October, 2009

Dr. Priti Kumar Roy

Contributory talk COCOA-3rd International Conference on Combinatorial Optimization and Applications Huangshan International Hotel, CHINA 10-12th June, 2009

Dr. Priti Kumar Roy

Contributory talk SMB-CSMB Joint Conference 2009 Zhejiang University, Hangzhou, CHINA 14-17th June, 2009

Dr. Priti Kumar Roy

Contributory talk 11th International conference on molecular systems biologyCAS-MPG PICB, Shanghai, CHINA 21-25th June, 2009

Dr. Priti Kumar Roy

Contributory talk International Conference on Applied Analysis and

Scientific Computation Shanghai Normal University, Shanghai, CHINA 25-28th June, 2009

Dr. Priti Kumar Roy

Contributory talk 5th Annual IEEE Conference on Automation Science and Engineering Bangalore, India 22-25th June, 2009

Dr. Farook Rahaman

Visiting Associate IMSc Chennai 30th Sept – 23rd Oct, 2009

Dr. Bibhas C. Giri

Paper Presentation International Workshop on Institutional view of Supply Chain Management (ISCM) Xian Jiatong University, China 8th - 10th August, 2009

Dr. Samik Ghosh

Delivered Talk Undirected power graphs of semigroups in the 22nd British Combinatorial Conference Department of Mathematics, University of St Andrews, St Andrews, Scotland, UK 5th – 17th July, 2009

C. Seminar/Workshop/Conference/Symposium Organized :

Name of the Teacher Type of Participation Name of the Seminar / Conference Place Duration

Dr. S. Chakraborty

Over 100 students participated. There was a competition for the students of the Dept. Recent trend in Physics and the role of Mathematics Department of Mathematics, Jadavpur University 16th January, 2009

D. Orientation Courses/ Refresher Courses Attended :

Coordinators of the course Title of the course Place Duration

Dr. K. Pal & Dr. P. Das

Refreshers' Course on "Lectures on Partial differential Equation" Dept. of Mathematics, J.U. 16th Feb – 7th March, 2009

4 A. Books /Monographs etc. Published :

Name of the Teacher Name of the Book Name of the Publisher

B. Articles Published in Journals in 2009:

(Author's name written in bold face are Faculties of this Department)

1. Bandyopadhyaya, Tanwi and **Chakraborty, Subenoy. :** Energy Conditions, Cosmological solutions and Cosmic no-hair Conjecture in Gauss – Bonnet Theory, Int. J. Theo. Phys. 48 : 1369-1378, (2009).
2. **Chakraborty, Subenoy** and Bandyopadhyaya, Tanwi. : Cosmological Solution in Brane with Gauss – Bonnet gravity in the bulk, Mod. Phys. Lett A 24 : 1915-1923, (2009).
3. **Chakraborty, Subenoy** and Bandyopadhyaya, Tanwi. : Thermodynamics of the Universe with modified chaplygin gas, Mod. Phys. Lett A 24 : 2377-2385, (2009).

4. **Chakraborty, Subenoy** and Bandyopadhyaya, Tanwi. : Cosmic No-Hair Conjecture in brane Scenarios : Constraint on bulk matter, Gen. Relt. Grav. : DOI 10.1007/S 10714 – 009 – 0778 –x, (on line on 10.03.2009).
5. **Chakraborty, Subenoy** and Bandyopadhyaya, Tanwi. : Modified Chaplygin traversable wormhole , Int. J. Mod. Phys. D 18 (2009): 463-476.
6. **Chakraborty, Subenoy ,** Bandyopadhyaya, Tanwi and Nath S. : Spherically Symmetric Vaccum Brane and Wormhole solution, Int. J. Theo. Phys. 48 (2009) : 29-35.
7. **Chakraborty, Subenoy** and Bandyopadhyaya, Tanwi. : Thinshell Wormhole in Einstein –Yang - Mills – Gauss – Bonnet Theory, Class. Quantum Grav. 26 (2009) : 085005.
8. Majumder M. and **Subenoy Chakraborty**. : Does the validity of first laws of thermodynamics imply that the generalized 2nd law of thermodynamics of the Universe is bounded by the event horizon? , class Quantum Grav. 26 (2009) 195016.
10. Majumder M. and **Subenoy Chakraborty**. : Validity of the generalized 2nd law of thermodymics of the Universe bounded by the event horizon in holographic dark energy model , Gen. Relt. Grav. (on line) : DOI 10.10071s 10714-009-0881-7.
11. **Bhattacharyya, A.**, De T. & Debnath D. : Space time with generalized covariant recurrent energy momentum tensor , Tamsui Oxford Journal of Mathematical Sciences 25(3) 269-276, (2009).
12. Debnath Dipankar & **Bhattacharyya Arindam.** : Some global properties of mixed super quasi-Einstein manifolds , Differential Geometry – Dynamical Systems, vol 11, pp 105-111, (2009).
13. Debnath Dipankar & **Bhattacharyya Arindam.** : Some Ricci semi symmetric spaces , Accepted for publication in Journal of Mathematics, vol II, No. 2 (2009).
14. **Sardar, S.K.** & Majumder, S.K. : On Fuzzy Ideals in Γ-Semigroups , International Journal of Algebra, 3 (16), 775–784, (2009).
15. **Sardar, S.K.** , Majumder, S.K. & Mondal, D. K. : A Note on Characterization of Prime Ideals of Γ –Semigroups in terms of Fuzzy Subsets, Int. J. Contemp. Math. Sciences, 4 (30), 1465 – 1472, (2009).
16. **Sardar, S. K.** & Saha, B.C. : A General Type of Regularity & Semiprime Ideals in Semirings, Southeast Asian Bull. of Mathematics 33, 769-780, (2009).
17. **Sardar, S. K.** & Saha, B.C. : Pre-prime & Pre-semiprime Ideals in G-semirings, International J. of Pure & Applied Math.54 (3), 321-329, (2009).
18. Dutta, T. K., **Sardar, S. K.** & Majumder, S. K. : Fuzzy Ideal Extensions of Γ-Semigroups, International Mathematical Forum, 4 (42), 2093 – 2100, (2009).
19. Dutta , T. K., **Sardar, S. K.** & Majumder, S. K. Fuzzy Ideal Extensions of Γ- Semigroups via its Operator Semigroups, Int. J. Contemp. Math. Sciences, 4 (30), 1455 –1463, (2009).

20. Majumder, S. K. & **Sardar, S. K.** : On properties of fuzzy ideals in po-semigroup, Armenian Journal of Mathematics 2 (2), 65-72, (2009).

21. Majumder, S. K. & **Sardar, S. K.** : Fuzzy Magnified Translation under semigroup homomorphism, South East Asian J. Math. & Math. Sc. 7 (2), 39-46, (2009.

22. **Sardar, S. K.** & Goswami, S. : On Derivations in Semirings, Southeast Asian Bull. Math. 33 (5), 917-928, (2009).

23. **Sardar, S.K.** & Saha, Bibhas Chandra : h-prime and h-semiprime ideals in ΓN-semirings and Matrix Semiring, Armenian Journal of Mathematics, Armenia (Accepted)..

24. **Sardar, S. K.** & Majumder, S. : A Note on Characterization of Semiprime Ideals of Γ-Semigroups in terms of Fuzzy Subsets, International Jr. of Pure & Applied Mathematics, Bulgeria (Accepted)..

25. **Sardar, S. K.** & Mondal, D. K. : Fuzzy h-ideal in Γ"hemiring , International Jr. of Pure & Applied Mathematics, Bulgeria (Accepted)..

26. Majumder, S. K. & **Sardar, S. K.** : On some properties of fuzzy ideal extensions of semigroups, Advances in Fuzzy Sets and Systems, 4 (3), 453-467, (2009) .

27. Dutta Barnali and **Sudeshna Banerjea** : Solution of a hypersingular integral equation in two disjoint intervals, Appl.Math.Lett., 22, 1281-1285, (2009).

28. **Bandyopadhyay Anup** , Islam Anarul Sk. and Das K.P.: Alternative ion acoustic solitary waves in magnetized low beta plasma consisting of warm adiabatic ions, non-thermal electrons and electrons having a vortex-like distribution, Phys. Plasmas, 16, pp: 022307 (10 pages)(American Institute of Physics) DOI: 10.1063/1.3073677, (2009).

29. **Bandyopadhyay Anup** and Das Animesh : Dust acoustic solitary waves in non-thermal plasmas consisting of negatively charged dust grains and isothermal electrons, Journal of Plasma Physics, 75, pp : 455 - 474, (Cambridge University Press) DOI: 10.1017/S0022377809008083, (2009).

30. **Bandyopadhyay Anup ,** Das Animesh and Das K.P.: Arbitrary amplitude dust acoustic solitary waves and double layers in nonthermal plasma including the effect of dust temperature, Phys. Plasmas, 16, pp: 073703, (American Institute of Physics) DOI: 10.1063/1.3170900, (2009).

31. **Bandyopadhyay Anup** , Islam Anarul Sk. and Das K.P.: Stability of ion-acoustic solitary waves in a multi-species magnetized plasma consisting of non-thermal and isothermal electrons, Journal Of Plasma Physics, 75, pp: 593 - 607, (Cambridge University Press) DOI : 10.1017/S0022377809008113, (2009).

32. **Roy P. K.,** Bairagi N., Chattopadhyay J. and Chattopadhyay B.: HIV model with intracellular delay -a mathematical study, Published in 5th

Annual IEEE Conference proceedings on Automation Science and Engineering Bangalore, pp 373-378 (2009).

33. **Roy P. K.** and Chattopadhyay B.: Mathematical Modelling on the dynamics of CD4+T cell infection by HIV that includes a time delay, International Journal of Evolution Equation), accepted (2009).

34. **Rahaman Farook** and Radinschi I. : Chaplygin electron gas model , Int.J.Mod.Phys.D; arXiv:0811.0068 [hep-th], (2009).

35. **Rahaman Farook** and Jamil Mubasher : Cosmic-coincidence problem and variable constants of physics, Eur. Phys. J. C 60, 149; e-Print: arXiv:0809.4314 [gr-qc], (2009).

36. **Rahaman Farook** and Jamil Mubasher : On the resolution of cosmic coincidence problem and phantom crossing with triple interacting fluids, To be published in Eur. Phys. J. C ; e-Print: arXiv:0810.1444 [gr-qc], (2009).

37. **Rahaman Farook** and Filippov A. I. : Features of galactic halo in a brane world model and observational constraints, To be published in Mon.Not.Roy.Astron. Soc.; arXiv:0812.2545 [gr-qc], (2009).

38. **Rahaman Farook** and Raichoudhuri B. : Motion of Massive and Massless Test particles in Dyadosphere Geometry, Mod.Phys.Lett.A ; arXiv:0805.3208 [gr-qc], (2009) .

39. **Rahaman Farook** and Raichoudhuri B. : Discussion on some characteristics of the Charged Brane-world Black holes, Int.J.Mod.Phys.A 24, 719 ; arXiv:0809.2474 [gr-qc], (2009).

40. **Rahaman Farook** and Ray S.: Scenarios of cosmic string with variable cosmological constant, Int.J.Mod.Phys.D, 18, 781; arXiv:astro-ph/0610519, (2009).

41. **Rahaman Farook** and Usmani A. A.: Electromagnetic mass model admitting conformal motion, an invited article in Ind.J.Phys.82, 1191; arXiv : 0806.3568 [gr-qc], (2009).

42. **Rahaman Farook** and Ray S.: Do Solar system tests permit higher dimensional general relativity?, Int.J.Theor.Phys. 48,3124;arXiv:0707.0951 [gr-qc], (2009).

43. **Rahaman Farook** and Kalam Mehedi : Wormholes geometry from real feasible matter sources, Int.J.Theor.Phys. 48, 471; arXiv:0807.4596 [gr-qc], (2009).

44. **Rahaman Farook** and Kalam Mehedi : Can electro-magnetic field, anisotropic source and varying Λ be sufficient to produce wormhole spacetime?, Int.J.Theor.Phys. 48, 1637; arXiv:0804.3848 [gr-qc], (2009).

45. **Rahaman Farook** and Kalam Mehedi : Particle motion around tachyon monopole, Gen.Rel.Grav. 40, 1869; arXiv:0707.0053 [gr-qc], (2009).

46. **Rahaman Farook** and Kalam Mehedi : Thin shell wormhole due to dyadosphere of a charged black hole, Mod.Phys.Lett.A. 24, 53; arXiv:0806.1391 [gr-qc], (2009).

47. **Das Pratulananda**, Lahiri B.K. and Dey Lakshmi Kanta : Cantor's theorem in 2-metric Spaces and its application to fixed point problems, Taiwanese J. Math, 14 (Accepted).

48. **Das Pratulananda** , Malik P. and Savas E. : On statistical limit points of double Sequences, Appl. Math. Computation, 215, 1030 – 1034, (2009).

49. **Das Pratulananda** and Cakalli H. : Fuzzy compactness via summability, Appl. Math. Letters, 22, 1665 – 1669, (2009).

50. **Das Pratulananda** and Bhunia S. : Two valued measure and summability of double Sequences, Czechoslovak Math. J., 59 (4) , 1141 – 1155, (2009).

51. **Das Pratulananda** and Banerjee Amar Kumar : On Sparse set Topology, to Appear in Math. Slovaca (2009).

52. **Das Pratulananda** and Dey Lakshmi Kanta : Fixed point of contractive mappings in Generalized metric spaces, Math Slovaca, (59) (4), 499 – 504, (2009).

53. **Das Pratulananda** and Dey Lakshmi Kanta : Porosity of non-contractive mappings in generalized metric spaces, Demonstratio Math, (42) (1), 163 – 174, (2009).

54. **Giri B.C.** and Dohi T. : Cost-effective ordering policies for inventory systems with emergency order, Computers & Industrial Engineering, 57,1336-1341, (2009).

55. Halim K.A., **Giri B.C.** and Chaudhuri K.S.: Fuzzy EPQ models for an imperfect production system, International Journal of Systems Science, 40(1), 45-52 (2009).

56. Chakraborty T., **Giri B.C.** and Chaudhuri K.S.: Production lot sizing with process deterioration and machine breakdown under inspection schedule, OMEGA, The International Journal of Management Science, 37, 257-271 (2009).

57. Halim K.A., **Giri B.C.** and Chaudhuri K.S.: Lot sizing in an unreliable manufacturing system with fuzzy demand and repair time, International Journal of Industrial and Systems Science, (in press) (2009).

58. **Giri B.C.** and Dohi T. : Quantifying the risk in age and block replacement policies, Journal of the Operational Research Society, (in press) (2009).

59. Chakrabarty Ivy, **Ghosh Shamik** and Sen M.K.: Undirected power graphs of semigroups, Semigroup Forum, 78 , 410 – 426 (2009).

60. Chakrabarty Ivy, **Ghosh Shamik** , Mukherjee T.K. and Sen M.K.: Intersection graphs of ideals of rings, Discrete Mathematics, 309 , 5381 – 5392 (2009).

61. Chakraborty Tulika, Giri B. C. and **Chaudhuri K. S.**: Optimal decisions for a finite production model with inspections, imperfect maintenance and imperfect rework of defective items, International Journal of Systems Science (accepted), UK (2009).

62. Halim K. A., Giri B. C. and **Chaudhuri K. S.**: Fuzzy EPQ models for an imperfect production system", International Journal of Systems Science (in press), UK (2009).

63. Halim K. A., Giri B. C. and Chaudhuri K. S.: Lot sizing in an unreliable manufacturing system with fuzzy demand and fuzzy repair time, International Journal of Industrial and Systems Engineering (accepted), UK (2009).

64. Roy T. and **Chaudhuri K. S.** : Optimal pricing for a perishable item under time-price dependent demand and time-value of money, International Journal of Operational Research (accepted), UK (2009).

65. Sana S., Sarkar B. K., Chaudhuri K. S. and Purohit D. : The effect of stock, price and advertising on demand – an EOQ model, International Journal of Modelling, Identification and Control, 6(1): 81-88, Inderscience, UK (2009).

66. Chakraborty Tulika, Giri B. C. and **Chaudhuri K. S**.: Production lot sizing with process deterioration under inspection schedule, OMEGA, 37: 257-271, USA (2009).

67. Roy T. and **Chaudhuri K. S.** : A production-inventory model under stock-dependent demand, Weibull distribution deterioration and shortage, International Transactions in Operational Research, 16: 325-346, Holland (2009).

68. Sarkar B., Sana S. and **Chaudhuri K. S**. : Optimal reliability, production lot size and safety stock in an imperfect production system, International Journal of Mathematics in Operational Research, UK (accepted) (2009).

69. Sarkar B., Sana S. and **Chaudhuri K. S**. : A finite replenishment model with increasing demand under inflation, International Journal of Mathematics in Operational Research, UK (accepted) (2009).

70. Sarkar B., Sana S. and **Chaudhuri K. S**. :A stock dependent inventory model in an imperfect production process, International Journal of Procurement Management, USA (accepted) (2009).

71. Roy T. and **Chaudhuri K. S.** : An EOQ model for deteriorating items for shortages with time-dependent demand, deterioration and unit production cost, Bulletin of Pure and Applied Mathematics, Jodhpur, India (accepted) (2009).

72. Das Tapasi, Mukherjee R. N. and **Chaudhuri K. S.**: Harvesting of a prey-predator fishery in the presence of toxicity, Applied Mathematical Modelling, 33: 2282-2292, USA (2009) .

73. Das Tapasi, Mukherjee R. N. and **Chaudhuri K. S**.: Bioeconomic harvesting of a prey-predator fishery, Journal of Biological Dynamics, 3(5): 447-462, USA (2009).

74. Das Tapasi, Mukherjee R. N. and **Chaudhuri K. S.** : Capital theoretic analysis of a Holling-Tanner type prey-predator fishery with taxation as

a control instrument", International Journal of Biomathematics, UK (in press) (2009).

75. Das Tapasi, Mukherjee R. N. and **Chaudhuri K. S.** : Combined harvesting of two competing fish species affected by toxicity, Bulletin of Pure and Applied Mathematics, 3(2), Jodhpur, India (in press) (2009).

76. Das N.C. , Lahiri A. and Sarkar S.: Eigenvalue Approached to Three Dimensional Coupled Thermoelasticity in a rotating transversely isotropic medium. Tamsui Oxford Joun. of Mathematical Sciences, vol.25,no.3,pp. 237-257, (2009).

77. Paul, K and Ghosh Dastidar, S.: Optimal distance vectors. International Journal of Mathematical Analysis, vol.3, No.5, 231-238, (2009).

78. Paul, K.: Translable radii of an operator in the direction of another operator II. Mathematica Slovaca (Accepted).

79. Paul, K and Das, G.: Symmetric Antieigenvalue for normal Operators. International Journal of Mathematical Analysis (Accepted).

5 Collaborative Programme :

6 Major Achievements :

Physics

Phone : + 91-33-2413-8917
Ext. : 2477/2328
H.O.D. : Prof. Alok Kr. Mukherjee
E-mail : hod@juphysics.jdvu.ac.in

1 A. Course Offered : 3 years 6 sems. B. Sc. Honours in Physics, 55x3
2 years 4 sems. M.Sc. in Physics, 36x2
3 years 6 sems. M.Sc. in Physics(evening),36x2
2 years M. Sc. In electronics science, 12x2
2 sems. Post M.Sc. diploma in medical physics, 12

Beside this department caters 4 semester subsidiary courses for departments of Mathematics, Chemistry, and Geology and 2/3 semester physics courses for departments of engineering faculty

B. Number of Faculty Members : 43

2 A. Area of Research Activities :

High energy Physics, general relativity, cosmology, atomic and molecular

physics, statistical physics, X-ray crystallography, condensed matter physics, thin films and nanomaterials, biophysics, solar cell.

B. Major Research Project : Please see annexure - I

3 A. Invited Talk Delivered Session Chaired : Please see annexure - II

B. Seminar/Workshop Conference/Symposium Attended : Please see annexure - III

C. Seminar/Workshop Conference/Symposium Organized : Please see annexure - IV

D. Orientation Courses/Refresher Courses Attended : Please see annexure-V

E. Orientation Courses/Refresher Courses Organized : 'Outlook and Avenues of Modern Science', Department of Physics, Jadavpur University, India, January 5 – 24, 2009

4. A. Books/Monographs etc. Published : Introduction to Nanoscience and Nanotechnology: Authors: **K.K. Chattopadhyay** and A.N. Banerjee, (Prentice Hall) ISBN Number: 978-81-203-3608-7

P-Type Transparent Semiconducting Delafossite $CuAlO_{2+x}$ Thin Film, Arghya Banerjee, **Kalyan K. Chattopadhyay**, Nova Science Publisher, NY, USA, Feb. 2009. ISBN-13: 9781606920329, ISBN-10: 1606920324

B. Articles Published in Journals : Please see Annexure - VI

5 Collaborative Programmes :

Dr. Ajay Kumar Ghosh

Dr. P. Olsson, Sweden, *Vortex Dynamics*

Prof. S. Teitel, Rochester Univ., USA, *Vortex Dynamics*

Dr. R. Wordenweber, FZ-Julich, Germany, Guided Flux motion in patterned nanostructured YBCO film

Prof. M. Andersson, KTH, Stockholm, Sweden, Vortex unzipping in irradiated YBCO single crystal

Prof. A.K. Mukherjee

Prof. J. R. Helliwell, University of Manchester, England.

Dr. Partha Pratim Ray

Prof. Pere Roca i Cabarrocas, Ecole Polytechnique, France Prof. Christophe Longeaud, Laboratoire de Génie Electrique de Paris, France

6 Major Achievements :

Prof. A.K. Mukherjee was appointed as a consultant in Lupin Pharmaceutical Ltd., Pune , India and was selected as a consultant in Powder Diffraction Commission, International Union of Crystallography.

25 out of 36 students qualified NET in 2009.

Annexure – I

2. **B.** Major Research Project

1. Synthesis of P-Type transparent conducting$CuAlO_2$ thin films for transparent electronics

   Principal Investigator: **Dr. K.K. Chattopadhyay**

   Funding Agency: DST

   Budget : Rs. 48.0 Lakhs;

2. Investigation on the lubricating properties of Automobile oil and grease with the addition of carbon Nanotubes and metal oxide nanoparticles

   Principal Investigator: **Dr. K.K. Chattopadhyay**

   Funding Agency : M/S Balmer Lawrie Co

   Budget : Rs. Rs.15.0 Lakhs

3. A Study on the transport properties of ferromagnetic ruthenocuprate superconductors, Funding Agency: CSIR

   Principal Investigator: **Dr. Ajay Kumar Ghosh**

   Budget : Rs. 24 lakhs

4. Coherence length in Mn and Zn substituted NBCO superconductor,

   Funding Agency: UGC major project

   Principal Investigator: **Dr. Ajay Kumar Ghosh**

   Budget : Rs. 10 lakhs

5. Assessment of Radon, Thoron and other Radionuclides in Underground and Around Coal Mine Areas of West Bengal

   Investigators : **Prof. Dipak Ghosh and Dr. Argha Deb**

   Funding Agency : West Bengal Pollution Control Board

6. Study and Development of donor-acceptor type organic photovoltaic devices

   Principal nvestigator : **Dr. N.B. Manik**

   Funding Agency : DST

   Budget : Rs. 26.54 lakhs

7. Studies on Trap and Photovoltaic Properties of Organic Solar Cell

   Principal nvestigator : **Dr. N.B. Manik**

   Funding Agency : UGC

   Budget : Rs. 10.76 lakhs

8. Synthesis of metal/rare earth doped nanocrystalline mixed spinel ferrites and characterization of their magnetic and hyperfine properties.

   Investigators : **Dr. S. Das**(P.I.), Dr. A. Bhattacharya, Dr. R. Basu

   Funding agency : Naval Research Board (NRB)

   Budget : Rs. 50 lakhs

9 Utilization of fly ash in ceramic system and characterization of its properties.

Investigators : **Dr.S. Das (P.I)**, Dr. A. Bhattacharya

Funding agency : UGC

Budget : 5.95 lakhs.

10. Energy conversion using bio-mimetic system- an interdisciplinary approach.

Investigators : **Prof. P. Nandy (P.I)**, Dr. R. Basu, **Dr. S. Das**

Funding agency : WBDST

Budget : 8.06 lakhs

11. Development and characterization of nano composite mullite: a study

Investigators : **Dr. S.Das (P.I)**, Dr. A. Bhattacharya

Funding agency : DST

Budget : 30.56 lakhs

12. Study of electrical properties of ion channel incorporated bilayer lipid membranes

Investigators : **Prof. P. Nandy (P.I), Dr. S. Das**

Funding agency : CSIR

Budget : 11.98 lakhs

13. A study on lipid polymorphism and its possible application in biomembrane activity.

Investigators : **Prof. P. Nandy (P.I)**, Dr. R. Basu, **Dr. S. Das**

Annexure – II

3 A Invited Talk Delivered/Session Chaired

1 **K.K. Chattopadhyay**: Refreshers Course in "Recent perspective in Nanoscience & Technology" held at Jadavpur University on 26th December, 2008.

2 **K.K. Chattopadhyay**: Delivered Invited talk at 10th Refresher course in physical science, Department of Physics. Burdwan University, 10th February, 2009.

3 **K.K. Chattopadhyay**: In refresher course entitled "Analytical Instruments and their role in research, Department of Instrumentation Science, February 18th, 2009, Jadavpur University.

4 **K.K. Chattopadhyay**: Delivered invited talk in "International conference on Nanomaterials (ICNM-2009)" at Institute of Macromolecular Science and Engineering (IMSE) Kottayam, Kerala, India, 6-9th April, 2009.

5 **K.K. Chattopadhyay**: Invited talk in National Seminar on Carbon nanotubes; J.C. College, 17th March, 2009.

6 **K.K. Chattopadhyay**: Invited talk at Workshop on Electron Microscopy, 23, November, 2009, Jadavpur University.

7 **K.K. Chattopadhyay**: Invited talk at International Conference-cum-workshop on Nanoscience and Nanotechnology "AIT NANO-2009"; October 12-16, (2009), at AIT, Haryana.

8 **K.K. Chattopadhyay**: Invitation for Invited talk on Int. Conf. on Adv. Nanomaterials and Nanotechnology (ICANN-2009), IIT Guwahati, December 9-11, 2009.

9 **K.K. Chattopadhyay**: Invitation for Invited talk on 54th DAE Solid State Physics Symposium, December 14-18, 2009 at M.S. University of Baroda, Vadodara

10. **Ajay Kumar Ghosh**: Vortex Phase diagram in Si-based superconductors, Invited talk, STINT meet, Royal Institute of Technology, Stockholm, Sweden. October 2009.

11. **S. Tarafdar**: 'A spring network model for simulating crack patterns in desiccating clay and clay-polymer composites', University of Toronto, 25th June 2009

12. **S. Tarafdar** : 'Experiments and Simulation in Viscous Fingering in a Lifting Hele-Shaw Cell', International conference on Disordered and Complex Materials, BHU, Jan 2009

13. **A. K. Mukherjee**: Delivered invited lecture in 38th National Seminar on Crystallography, Mysore University, February 11-13, 2009

14. **S. Ray** : Teaching computational physics in Jadavpur University Workshop on the teaching computational physics, TIFR Mumbai, 14 th March 2009

15. **Prof. S. Tarafdar** : Convener of Session on 'Desiccation and Fracture in Clay' at 14th International conference on Clay at Castellaneta Marina, Italy, 14-20th June 2009

Annexure – III

3 B. **Seminar/Workshop/Conference/Symposium Attended**

1. Ajanta Haldar and **N.B. Manik** : Effect of variation on concentration on Methelen Blue dye based organic solid state thin film and comparison on photovoltaic parameters. CMDAYS 2009, Jadavpur University , 26-28th August 2009.

2. Sutapa Saha, Ajanta Haldar, Subhasis Maity, **N.B. Manik** : Comparison of Photovoltaic Effects using Crystal violet, Methyl Red and Safranin-T dye based Photoelectrochemical cell, Luoknow, December, 2009.

3. **Partha Pratim Ray,** Christophe Longeaud, Dmitri Daineka, Pere Roca i Cabarrocas, Ayana Bhaduri, Partha Chaudhuri : Development of large area single junction amorphous silicon solar cell from argon dilution of

silane in a single chamber PECVD system" – PVSEC-18, Proceedings of 18th Photovoltaic Science and Engineering Conference (Kolkata, India, Jan 19 – 23, 2009

4. **S.S. Ali** participated and presented a poster in the conference on 'Low Frequency Radio Universe' NCRA, Pune, India, December 8 – 12, 2008.

Annexure – IV

3 C. Seminar/Workshop/Conference/Symposium Organized

1. Convener and Jt. Convener of National symposium : **Dr. K.K. Chattopadhyay and Dr. P.P. Ray** : 'Condensed Matter Days- 2009' held during August 26-28, 2009 at the Department of Physics, Jadavpur University
2. **Prof. S. Tarafdar** :Contemporary Issues in Condensed Matter Physics: One day seminar organized by CMPRC, Physics Department, Jadavpur University, on 16th March 2009

Annexure – V

3 D. Orientation Courses/Refresher Courses Attended

1 **G. Mostafa, S. Ray, S. Kumar, D. Biswas, P.P. Ray, S. Mondal, B. Tudu, S.S. Ali, D. Mondal** Participated in 'Outlook and Avenues of Modern Science' Jadavpur University, India, January 5 – 24, 2009.

Annexure – VI

4 B. Articles Published in Journals

1. **Banerjee, N.**, Ganguly, K.
   Generalized scalar tensor theory and the cosmic acceleration
   (2009) International Journal of Modern Physics D, **18** (3), pp. 445-451.
2. Mukherjee, S., **Banerjee, S.N.**
   On the colour factor ratio ca/cf
   (2009) Modern Physics Letters A, 24 (7), pp. 509-512.
3. Chakrabarti, B., **Bhattacharya, A.**, Mani, S.
   On some properties of di-hadronic states
   (2009) Physica Scripta, **79** (2), art. no. 025103,.
4. B.Chakrabarti**, A. Bhattacharya,** S. Mani and A. Sagari
   Baryons in Diquark-Quark Model
   Acta Physica Polonica B (in Press)
5. **Bhattacharyya, B.**
   Bounds on the ground state energy: Application of the variational principle
   (2009) American Journal of Physics, **77** (1), pp. 44-47.
6. Chowdhury, J., Karmakar, S.N., **Bhattacharyya, B.**
   Effect of external electric field on the charge density waves in one-dimensional Hubbard superlattices
   (2009) Journal of Physics Condensed Matter, **21** (1), art. no. 015302,.

7. Nag, S., **Bhattacharya, D.P.**
Piezoelectric scattering limited mobility characteristics of a degenerate surface layer in compound semiconductors at low lattice temperatures
(2009) Physica E: Low-Dimensional Systems and Nanostructures, **41** (9), pp. 1689-1695.

8. Nag, S., **Bhattacharya, D.P.**
Effect of finite energy of intravalley acoustic phonons on the temperature of non-equilibrium electrons in a quantum surface
(2009) Physica B: Condensed Matter,.**404**, 4207

9. **D.P. Bhattacharya**, S. Midday
Screening due to non-equilibrium carriers in presence of deep repulsive traps.
(2009) Journal of Physics and Chemistry of Solids **70,** pp. 360-364.

10. Nag, S., **Bhattacharya, D.P.**
Field-dependent mobility characteristics of a two-dimensional electron gas due to quasi-elastic interaction with intravalley acoustic phonons
(2009) Journal of Physics and Chemistry of Solids, **70** (8), pp. 1150-1155.

11. Midday, S., **Bhattacharya, D.P.**
Screening length in presence of attractive traps
(2009) Physica B: Condensed Matter, **404** (8-11), pp. 1190-1194.

12. Nag, S., **Bhattacharya, D.P.**
Rate of energy loss to intravalley acoustic modes in a degenerate surface layer at low lattice temperatures
(2009) Physica B: Condensed Matter, **404** (2), pp. 310-314.

13. **Bhattacharya, D.P.**, Midday, S.
Screening due to non-equilibrium carriers in presence of deep repulsive traps
(2009) Journal of Physics and Chemistry of Solids, **70** (2), pp. 360-364.

14. Midday, S., **Bhattacharya, D.P.**
Effect of magnetic field on the screening due to hot electrons in the presence of shallow attractive traps. (2009)Canadian J. of Physics (In Press)

15. Nag, S., **Bhattacharya, D.P.**
Energy loss in degenerate quantum surfaces due to piezoelectric interaction at low lattice temperatures (2009) Physica E (in Press)

16. Nag, S., **Bhattacharya, D.P.**
Effect of finite energy of intravalley acoustic phonons on the temperature of non-equilibrium electrons in a quantum surface
(2009) Physica B: Condensed Matter, . Article in Press.

17. Poddar, P., Bandyopadhyay, A., **Biswas, D.**, Ray, B., Ghosh, P.N.
Measurement and analysis of rotational lines in the (2ν1 + ν2 + ν3) overtone band of H2O perturbed by CO2 using near infrared diode laser spectroscopy
(2009) Chemical Physics Letters, **469** (1-3), pp. 52-56.

18. Ghosh, S., Biswas, M., **Chattopadhyay, B.D.**, Mandal, S.
Microbial activity on the microstructure of bacteria modified mortar
(2009) Cement and Concrete Composites, **31** (2), pp. 93-98.

19. Ghosh, C.K., Popuri, S.R., Mahesh, T.U., **Chattopadhyay, K.K.**
Preparation of nanocrystalline CuAlO2 through sol-gel route
(2009) Journal of Sol-Gel Science and Technology, **52** (1), pp. 75-81.

20. Goswami, S., Mitra, M.K., **Chattopadhyay, K.K.**
Enhanced field emission from polyaniline nano-porous thin films on PET substrate
(2009) Synthetic Metals,. Article in Press.

21. Jana, S., Goswami, S., Nandy, S., **Chattopadhyay, K.K.**
Synthesis of tetrapod like PbS microcrystals by hydrothermal route and its optical characterization
(2009) Journal of Alloys and Compounds, **481** (1-2), pp. 806-810.

22. Mukherjee, N., Ahmed, Sk.F., **Chattopadhyay, K.K.**, Mondal, A.
Role of solute and solvent on the deposition of ZnO thin films
(2009) Electrochimica Acta, **54** (16), pp. 4015-4024.

23. Nandy, S., Maiti, U.N., Ghosh, C.K., **Chattopadhyay, K.K.**
Enhanced p-type conductivity and band gap narrowing in heavily Al doped NiO thin films deposited by RF magnetron sputtering
(2009) Journal of Physics Condensed Matter, **21** (11), art. no. 115804,.

24. Banerjee, D., Jha, A., **Chattopadhyay, K.K**.
Low-temperature synthesis of amorphous carbon nanoneedle and study on its field emission property
(2009) Physica E: Low-Dimensional Systems and Nanostructures, **41** (7), pp. 1174-1178.

25. Thapa, R., Saha, B., **Chattopadhyay, K.K.**
Synthesis of cubic aluminum nitride by VLS technique using gold chloride as a catalyst and its optical and field emission properties
(2009) Journal of Alloys and Compounds, **475** (1-2), pp. 373-377.

26. Saha, B., Thapa, R., **Chattopadhyay, K.K.**
A novel route for the low temperature synthesis of p-type transparent semiconducting CuAlO2
(2009) Materials Letters, **63** (3-4), pp. 394-396.

27. Thapa, R., Saha, B., **Chattopadhyay, K.K.**
Enhanced field emission from Si doped nanocrystalline AlN thin films
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28. Maiti, U.N., Ahmed, Sk.F., Mitra, M.K., **Chattopadhyay, K.K.**
Novel low temperature synthesis of ZnO nanostructures and its efficient field emission property
(2009) Materials Research Bulletin, **44** (1), pp. 134-139.

29. Mitra, S., **Das, S.**, Basu, S., Sahu, P., Mandal, K.
Shape-and field-dependent Morin transitions in structured α-Fe2O3
(2009) Journal of Magnetism and Magnetic Materials, **321** (18), pp. 2925-2931.

30. Modak, S., Ammar, M., Mazaleyrat, F., **Das, S.**, Chakrabarti, P.K.
XRD, HRTEM and magnetic properties of mixed spinel nanocrystalline Ni-Zn-Cu-ferrite
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Role of non-lamellar-forming lipid in promotion of liposomal fusion
(2009) Phase Transitions, **82** (3), pp. 221-227.

33. **Ghosh, D., Deb, A.**, Das, R., Gupta, A.
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34. **Ghosh, D., Deb, A.**, Sengupta, R.
Anomalous radon emission as precursor of earthquake
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35. **Ghosh, D., Deb**, A., Dutta, S.
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36. **Ghosh, D., Deb, A.**, Dutta, S.
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38. **Dipak Ghosh, Argha Deb**, subrata Halder, Swarup ranjan Sahoo, Rosalima Sengupta
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39. **Ghosh D., Deb A.**, Dhar (Mitra) A. and Haldar P. K.
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40. **Dipak Ghosh, Argha Deb**, Swarnapratim Bhattacharyya and Utpal Datta
Multifractality assessment in high energy nuclear collisions with levy index in self affine scenario
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Azimuthal correlation and fractal study of compound hadrons (pions and protons) at dubna and SPS energy (2009) Ind. J. Phys. in press

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(2009)Pramana J. Phys. in press

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