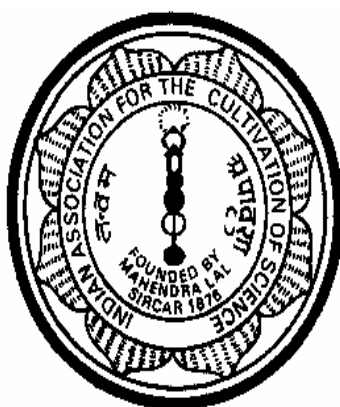


DRAFT ANNUAL REPORT
2009 – 2010



**INDIAN ASSOCIATION FOR THE CULTIAVATION OF
SCIENCE**
JADAVPUR, KOLKATA - 700 032

(ESTABLISHED IN 1876)

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ANNEXURE

Annual Accounts

Audit Report

Budget

Figure 1 :

Govt. of West Bengal	4%	:	Plan	Rs. 3.00 crore
			Non-Plan	Rs. 0.27 crore
Govt. of India	68%	:	Plan	Rs. 52.10 crore
			Non-Plan	Rs. 2.00 crore
Sponsored Projects	28%	:		Rs. 22.65 crore

Governing Council : Composition and tenure

Professor S.K. Joshi
(Nominated by the Department of Science & Technology, Government of India)

Secretary to the Government of India or his nominee
Department of Science & Technology

Financial Advisor to the Government of India,
Department of Science & Technology

Professor E V Sampathkumaran
Department of Condensed Matter Physics & Materials Science
Tata Institute of Fundamental Research
&

Professor H R Krishnamurthy
Department of Physics
Indian Institute of Science, Bangalore
(Nominated by the Department of Science & Technology, Government of India for three terms)

Professor Raghavendra Gadagkar
Centre for Ecological Sciences
Indian Institute of Science, Bangalore
&

Dr. K N Ganesh, Director
Indian Institute of Science Education and Research, Pune
(Nominated by the Council of IACS for three terms)

Professor C K Dasgupta
Department of Biophysics
Molecular Biology & Genetics
University of Calcutta
(Nominated by INSA for three terms)

Principal Secretary to the Government of West Bengal,
Department of Higher Education

Professor Kankan Bhattacharyya, Director, IACS

Professor Shib Sankar Bhattacharyya
(Elected from amongst the Academic Staff for one term)

Shri Somnath Roy
(Elected from amongst the Administrative & Technical Staff for one term)

Ms. Shinjita Acharya
(Elected from amongst the Research Fellows & Associates for one term)

Sri G S Mukherjee, Registrar (Acting) – Non Member Secretary

Finance Committee : Composition (Tenure – permanent)

Chairman, IACS

Director, IACS

One Representative of Ministry concerned, GOI

Professor Anandadeb Mukherjee, Trustee, nominated by the Council

Principal Accountant General, Govt. of West Bengal

Jt. Secretary, Deptt. Of Finance, Govt. of West Bengal (Invitee member)

Registrar, IACS, Non-member Secretary

Research Advisory Committee (Tenure – Three years)

Professor S Dattagupta, Director, IISER, Kolkata
Professor V Chandrasekhar, IIT, Kanpur
Professor E D Jemmis, IISc., Bangalore
Professor Ashutosh Sharma, IIT, Kanpur
Professor N Chadrakumar, IIT, Chennai
Professor S B Krupanidhi, IISc., Bangalore
Professor Avinash Khare, Institute of Physics, Bhubaneswar
Professor Pratima Sinha, Bose Institute, Kolkata
Professor T K Chandrashekar, Director, RRL, Thiruvanthapuram
Professor T K Chakraborty, ICT, Hyderabad
Professor N Periasamy, TIFR, Pune
Professor N K Ganesh, IISER, Pune
Professor A Surolia, National Institute of Immunology, New Delhi
Professor Ajay Kumar Sood, IISc., Bangalore
Professor K Bhattacharyya, (Convener)

Trustee :

Professor S N Ghosh
Professor S P Moulik
Professor Anandadeb Mukherjee
Professor Dipti Kumar Chattoraj
Professor Bhabatarak Bhattacharyya

Editorial Committee for Annual Report (Tenure – One year)

Professor T Chakraborty	-	Chairman
Dr. Indra Dasgupta	-	Member
Dr. Kaushik Ray	-	Member
Sri Somansu Sekhar Das	-	Convener

Organisational Chart :

GENERAL BODY

GOVERNING COUNCIL

MANAGEMENT COMMITTEE

DIRECTOR

Registrar
General Administration
Establishment
Accounts
Engineering Section

Heads of the Dept./Unit/Sections
Materials Science
Solid State Physics
Spectroscopy
Theoretical Physics
Biological Chemistry
Inorganic Chemistry
Organic Chemistry
Physical Chemistry
Energy Research Unit
MLS Professor of Physics Unit
Polymer Science Unit
Centre for Theoretical Science
Centre for Advanced Materials
Centre for Renewable Energy Sources
Raman Centre for Atomic Molecular &
Optical Sciences
Central Scientific Services
Indian Journal of Physics
Library
Workshop

Implementation of Right to Informational Act :

The Association has been in pursuance of implementation of the provision of Right to Information Act enunciated by Govt. of India. Sri Amit Kumar Mazumder, Assistant Registrar and Sri Prabir Manna, Office Supdt. have been appointed as the Central Public Information Officer and Assistant Public Information Officer.

During the year under review, four requests have been received and accepted for which a sum of Rs. 40/- as Registration fees and Rs. 138/- as additional charges have been realized.

PERSONAL PROFILE :

Group	No. of Scientific/ Technical staff	Academic*	Administrative Staff
A	5	101	11
B	24	--	11
C	87	--	59
D	42	--	63

Implementation of the Official Language Policy in the Association

During the financial year 2009-2010, the Association has successfully implemented Official Language Policy of the Government of India in full spirit. In order to ensure proper and effective implementation of the Official Language Policy in the Association, it has constituted an Implementation Committee and an Advisory Committee under the able Chairmanship of its Director Prof. Kankan Bhattacharya. The meetings of the committees were held periodically as per schedule. The Implementation Committee comprises of all internal members whereas the advisory committee besides some of the internal members also includes two external members; Mr. R.N.Saroj, Dy. Director (East), Hindi Teaching Scheme, and Mr.Praveen Kumar, Chief Official Language Manager, Allahabad Bank. With a view to meet the day to day need of work for implementation of the Official Language in the Association, on the advice of the implementation committee a part-time Hindi Officer has been appointed. The part-time Hindi Officer is assisting the departments of the Association in drafting letters/office memorandums etc. in Hindi besides making some of the official forms bilingual in conformity with the Official Language Act 1963.

The Association had also managed to start a training program of Hindi courses in which so far 150 staff members have already received training of Praveen and Pragya courses under the able supervision of the Hindi Teaching Scheme, Department of Official Language, and Ministry of Home Affairs. All these staff members, who received above training, came out with good scoring of marks in their respective session ending examinations. The Association has also planned to provide training of Hindi Courses to 20 staff members during the session of July-November, 2010, in its training centre. During the year, Association has also celebrated its 3rd 'Rajbhasha Diwas' on 19th September, 2009 wherein Mr. Rakesh Kumar, Deputy Director (East), Rajbhasha (Hindi) Implementation, was invited as the Chief Guest of the function. The function was accomplished with multi-cultural activities and programs like songs, recitations and essay competitions participated by our staff and scholars. The whole hearted participation of the staff and scholars made the function a gorgeous and marvelous. The Association further expects better participation of its staff members in future, and also hopes full co-operation of the Government in this regard to implement the policy with more determination in the coming years.

STATUS OF RESERVATION FOR SC/ST/OBC/PHYSICALLY DISABLED PERSONS.

Consequent upon adoption of the principle of reservation for SC/ST/OBC/PWD by the Governing Council, the Association has been following the policy of the Government in the matter of the recruitment of Academic and Non-Academic staff.

A brief statement in regard to the recruitment in the post of reserved categories till 31st March, 2010 is appended below:

Category	No. of post Identified	No. of vacancy available	No. of post filled up	No. of post advertised	No. of post to be advertised	Post to be filled up against future vacancy
Group A	08	08	02	-	06	-
Group B	14	11	08	02	01	03
Group C	62	38	29	07	02	24
Group D	53	29	29	-	-	-
TOTAL	137	86	68	09	09	27

Note: After implementation of 6th CPC's report future vacancies of Group D category are deemed to have been abolished, hence identified unfilled vacancies need not be marked as "to be filled up against future vacancy."

ENDOWMENT LECTURE FOR THE PERIOD FROM APRIL 2009 TO MARCH 2010

Sl.No.	Date	Title	Speaker	Name of the Lecture
1.	07/10/2009	Computation & the Nano-Bio-Med Frontier :- Challenges for the next decade and beyond	Professor Michael L Klein	M.L. Sircar
2.	03/11/2009	Tuned to change Diffuse Scattering to Correlated Electrons	Professor S.K. Joshi	K. Banerjee Memorial Lecture
3.	10/11/2009	Experiments on the exchange correlation hole in solids	Professor J. Kirschner	Coochbehar Professorship Lecture
4.	09/12/2009	Molecular Beam Studies of Dynamic Photochemical Processes	Professor Y.T. Lee, NL	Sir C.V. Raman Memorial Lecture
5.	07/01/2010	Reminiscences about My Professor from 1952-'56-Beginning Stage of Research in India in Nuclear Magnetic Resonance	Professor T.P. Das	M. N. Saha Memorial Lecture
6.	21/01/2010	Chemistry in Containers	Professor V. Ramamurthy	M.N. Saha Memorial Lecture
7.	29/01/2010	Structural Phase Transitions : Discrete & Continuous	Dr. Srikumar Banerjee	Homi Bhabha Lecture
8.	03/02/2010	Exploratory research in Photoscience : 'Laser Tsunami Manipulation' of Single living cells and 'Laser Trapping Crystallization of molecules	Professor H. Masuhara	M.L. Sircar Memorial Lecture
9.	16/02/2010	Apoptotic Agents : Can we use those for Breast and Colon Cancer treatment	Professor Subhash C. Basu	Joy Kissen Mukherjee Endowment Lecture
10.	18/02/2010	Science & Poetry – Reflection of Creativity	Professor P. Agrawal	Dr. R.L. Mitra Professorship Lecture
11.	18/03/2010	Electric Field Effects on Structure & Dynamics at the Electronically Excited States of Molecules and Clusters	Professor N. Ohta	Professor S.C. Sircar Memorial Lecture

Post-B.Sc. Integrated Ph.D Programme in Chemical Sciences :

This programme was launched since academic session 2005-06 as a joint academic venture between S N Bose National Centre for Basic Sciences and IACS. The primary objective of this programme is to offer research oriented multidisciplinary courses in Chemical Sciences for the first two years as a part of requirement for M.Sc. degree awarded by West Bengal University of Technology, followed by admission of the students to Ph.D programme under various departments of the institute. For details we refer to the IACS website.

From August 2009, S N Bose National Centre for Basic Sciences has opted out of this academic joint venture. During the year eight students have successfully completed their two years M.Sc. degree in Chemical Sciences and out of them seven have joined IACS as Junior Research Fellow. Moreover, after successful clearance of a National level

written test and interview four students got admitted to this programme in the year 2009-10 out of nearly 477 applicants but finally the opted out of the programme.

MISSION PROGRAMME FOR TECHNOPRENEURSHIP

During the year 2009-10, the activities of the Mission Programme for Technopreneurship have been continued to promote innovation under the Division of Industrial Cooperation & Technology Management (DICTEM). As with the previous year the Division has served as the implementing platform for the Intellectual Property Facilitation Consortium of DST institutes in Kolkata. Noteworthy achievements attained were as following:

- Expansion and consolidation of Integrated Monitoring and Information System in which offline server based data searching web based tool has been designed and data can be searched using patent No, Inventor's name, Year of Publication and keywords from the Claims and Abstract.
- Execution of the IPR Policy of IACS by achieving an increase in number of patents being filed, viz., International Patent filing, Patent Indian Prosecution, new patent filing, US patent prosecution assistance and more patent applications are in pipeline to be filed at India and abroad.
- Complete implementation of online data transfer for inventors of IACS through IPFC website (<http://www.ipfckol.tifac.org>), which contains the online IP submission form, through which the interested inventors can submit their query and a self-generated mail containing the confidential information is posted to ipfc.tifac@gmail.com, therefore achieving an online interface through which the scientists can interact with the Division.
- Value added patent informatics and patentability analysis by subject wise categorization based on claim based searches and International Patent Classifications (IPC).
- The Division lent support to a request for prosecuting the trademark registration for the IACS logo for the purpose of signing co-publishing agreements. The IACS logo has been applied for Service Mark under class13, 61 and 62 of The Indian Trademark Act, 1999.

Patents Filed:

<u>Assignee</u>	<u>Title of Patent</u>	<u>Inventors</u>	<u>Status of Application</u>
Indian Association for the Cultivation of Science (sole)	Transition metal doped semiconductor nanocrystals	N. Pradhan, N.R. Jana, D. D. Sarma	International Patent Application
Indian Association for the Cultivation of Science (sole)	Non-toxic, water-soluble and functionalized transition metal doped semiconductor nanocrystals and a process of preparation thereof.	N.R. Jana, N. Pradhan, D. D. Sarma	International Patent Application
Indian Association for the Cultivation of Science (first) and Lifecare Innovations Pvt. Ltd (second)	Formulation comprising nanoparticles of methylglyoxal conjugates	M Ray A. N. Mitra	Patent Prosecution
Indian Association for the Cultivation of Science (sole)	Cationic Morpholino Based Antisense Agent	S. Sinha	Provisional Application
Indian Association for	A visual detection method of a	A. Sarkar, S.	Provisional Application

IPFC has shared its expertise and resources to prepare patent search reports in response to specific requests from members of scientific community. Further more an information booklet has been drafted comprising a brief introduction to all the established IPRs, procedures for procuring different types of Intellectual Property Rights in India and elsewhere, drafting of IP applications, license agreements, confidentiality clauses, and Patenting forms and an extensive list of internet resources. An ambitious project of generating periodic E-newsletters highlighting current IP news would be shortly initiated to familiarize all scientists and researchers with the updates of Intellectual Property Rights.

Summer School:

To create awareness in higher science education and also to generate human resource in basic sciences, the Indian Association for the Cultivation of Science started a Summer School on basic sciences for school leaving students in the year 1999. In the line of the previous years, Department of Theoretical Physics took the initiative to organize the “XIth I.A.C.S. Summer School on Basic Sciences, 2009” during the month of April-May, 2009. Total eighty seven participants were registered their names for attending the “XIth I.A.C.S. Summer School on Basic Sciences, 2009”. Eminent Scientists from various institutes delivered series of lectures in different basic areas of Physics, Chemistry, Mathematics and Biology.

The format of the school was :

1. Lecture course on basic subjects and on frontier areas.
2. Special lectures on diverse topics.
3. Interactive sessions with the students and science film show.

Through interactions with the students great enthusiasm to study basic sciences was observed at the end of the school. Convener of the I.A.C.S. Summer School on Basic Sciences, 2009 was Prof. Soumitra SenGupta, Dept. of Theoretical Physics, IACS.



STAFF STRENGTH AS ON 31ST MARCH, 2010

DIRECTOR & HIS STAFF

K Bhattacharyya, Director
S Deoghuria, Senior System Analyst
G S Mukherjee, Secretary to Director's Directorate

CANTEEN

S K Ghosh, Manager-cum-Salesman
B Sardar, Washboy-cum-Bearer (NHS-3)
S Mondal, Washboy-cum-Bearer (NHS-3)
S Mitra, Washboy-cum-Bearer (NHS-3)
S Barua, Helper D
T Bera, Group C
B Barik, Group C

CENTRAL SCIENTIFIC SERVICES

S Dhall, Office Supdt.-I
S Khatua, Tech. Officer-II
C Chakraborty, Tech. Officer-II
S Bose, Tech. Officer-I
R Hazra, Tech. Officer-I
P Dasgupta, Tech. Officer
S Maji, Tech. Officer
P Sinha, Tech. Officer
S Choudhury, Tech. Supdt.-I
S K Sinha, Tech. Supdt.
P K Das, Tech. Supdt.
B N Mondal, Tech. Supdt.
A K Roy, Tech. Supdt.
G K Manna, Tech. Supdt.
S S Roy, Tech. Supdt.
D Chakraborty, Tech. Supdt.
A K Chakraborty, Tech. Assistant B
M Mondal, Helper D

THEORETICAL PHYSICS

T K Moulik, Asst. Registrar-I
B Ghosh, Asst. Registrar
S K Mukherjee, Tech.Suptd.
S Balti, Tech. Assistant A
S Mandal, Tech.Assistant B
B Dorji, Group C

MLS PROFESSOR'S UNIT

U Chakraborty, Office Supdt.
S Chakraborty, Tech. Supdt.
S K Sarkar, Tech. Assistant B

PHYSICAL CHEMISTRY

K K Dutta, Asst. Registrar-I
M Bhattacharyya, Office. Supdt.
A K Dasgupta, Tech. Supdt.-I
S Sinha, Tech. Supdt.
J Mondal, Tech. Assistant B
B Chandra, Tech. Assistant B

LIBRARY

M Banerjee, Librarian
C K Das, Asst. Librarian-I
A Das Gupta, Asst. Librarian
S Roy, Asst. Librarian
A K Sardar, Asst. Registrar-I
T K Mukherjee, Doc. Supdt.-I
S K Dutta, Doc. Supdt.-I
S Roy Choudhury, Doc. Supdt.-I
R Roy, Sr. Doc. Assistant
S Chongder, Sr. Doc. Assistant
S B Misra, Sr. Doc. Assistant
G Pal, Doc. Assistant
B Dafadar, Sr. Doc. Assistant
S K Chandra, Doc. Assistant

WORKSHOP

S Bandyopadhyay, Workshop Supdt.-II
P Nayak, Office Supdt.
S K Modak, Tech. Supdt.-II (Retd. on 31.01.2010)
K M Maity, Tech. Supdt.-II
B Prasad, Tech. Supdt.-II
S K Bose, Tech. Supdt.-I
A K Mallik, Tech. Supdt.-I
N K Roy, Tech. Supdt.-I
A Manna, Tech. Supdt.-I
N Ganguly, Tech. Supdt.-I
B Pal, Tech. Supdt.
D Mitra, Tech. Supdt.
S S Prasad, Tech. Supdt.
H Dutta, Tech. Supdt.
S Mallick, Tech. Supdt.
S Halder, Tech. Supdt.
J N Ghosh, Tech. Supdt.
S Mistry, Tech. Supdt.
T D Biswas, Group C

S Majumdar, Tech. Supdt.
S Bose, Sr. Technician
T Maity, Sr. Technician
B Ghosh, Sr. Technician, (Retd. on 31.01.2010)
P Tarafdar, Sr. Technician
R Kumar, Sr. Technician
P K Rana, Sr. Technician
P Das, Sr. Technician
S K Pal, Sr. Technician
D S Yadav, Sr. Technician
S Basu, Sr. Technician
P Debnath, Helper D
B Saha, Helper D
P Mondal, Helper D
M Saha, Helper D
D Banerjee, Helper D
G Das, Helper D
K Karan, Helper D

ADMINISTRATION

Debasish Bandopadhyay (Resigned on November, 2009)

Sujoy Kr. Mukhopadhyay

Tarun Kumar Kabasi

Sambhu Nath Moulick

Subrata Roy

Subir Nath

Amit Kr. Majumdar

Prabir Manna

Amalendu Roy

Mritunjoy Mukherjee

Arun Dutta

Pabir Goon

Apu Chakraborty

Debatosh Majhi

Saswati Bhattacharya (Saha)

Biswanath Mondal

Madhusudan Sarkar

Aparna Chakraborty

Sweta Kishore Behura

Aparna Das

Soumik Mirta

Soumen Seal

Pratima Ghosh Dastidar (Retd. on 30.09.09)

Ram Gopal Sharma (Retd. on 31.03.10)

Durga Prasad Gimire

Narayanji Jadav

Prabir Kr. Guria

Sailendra Nath Das (Retd. on 31.05.09)

Atul Adhikari

Adikanda Behura

Sakhi Mondal

Rakesh Kr. Balmiki

Joy Singh Balmiki

Ramesh Ch. Balmiki

Anil Harijon

Soumendra Nath Bose

Rajiv Debnath

Arup Dhar

Shib Sankar Basu

Ajit Kr. Basak

Haradhan Majumdar

Basudev Bag

Nikunjalal Bera (Retd. on 30.04.09)

Parimal Ghosh

Sanat Adak

Narayan Ch. Das Roy (Retd. on 31.01.10)

Ananda Pal

Srikanta Sahoo

Arup Kr. Saha

Gautam Chatterjee

P.P.Chakraborty

Samaresh Saha

Swapan Mukhopadhyay

Subrata Ghosh

Swapan Thakur

Sujit Kr. Biswas

Buddhadev Sarkar

Prasanta Kr. Kundu

Somansu Sekhar Das

Tapan Sardar

Shovon Mallick

Ajoy Kr. Nandy

Pranab Ch. Kar

Biplu Barua

Goutam Chakraborty

Raj Kumar Routh

Bibhas Roy

P.K.Roy

Dilip Paul (died on

Subodh Mondal

Gautam Chakraborty

Prabir Kr. Guria

Nirmal Majumder

Sonai Sardar

Pitambar Sahoo

Harikishan Rai

Amit Kr. Harijan

Munna Balmiki

Amar Singh Harijon

Ramesh Ch. Harijon

Amit Kumar Sarkar

Dibakar Majumdar

Chandan Goswami

Sibu Chatterjee

Ramesh Ch. Ghosh

Kalidas Mondal

Susanta Kr. Paul

Sankar Mitra

Bimal Paul

Ajit Kr. Bose

POLYMER SCIENCE UNIT

Tarun Kr. Mandal

Sudip Malik

Suhrit Ghosh

Arun Kr. Nandi

Nityananda Naskar

Amit Kr. Chakraborty

Panchu Gopal Chakraborty

Rajendra Prasad Mondal

Somnath Roy

Champa Bag (Pal)

Satinath Pal

Siddhartha Mistry

INDIAN JOURNAL OF PHYSICS

Adhir Nath Ghatak (Retd. on 30.09.2009)
Anita Chowdhury
Ashit Banerjee

MATERIALS SCIENCE

Prof. G.P. Das
Prof. B.N.Dev
Dr. Amitava Patra
Dr. Bimalendu Deb
Dr. Shyamal Kumar Saha
Prof. Samir Saha
Dr. Sugata Ray
Dr. Asim Bhowmik
Dr. Narayan Pradhan
Prof. Shib Sankar Bhattacharyya
Prof. Tanusree Kar
Dr. Subodh K De
Sri Arunasish Bhattacharyya
Sri Tapas Kumar Das
Subhasish Guha Roy
Sri Utpal Sinha
Prabir Kumar Das
Sri Subir Sikder
Sri Ranajit Sardar
Sri Tapas Bala
Sri Sanjib Naskar
Sri Gour Chandra Basak
Smt. Shipra Ghosh
Sri Suresh Routh
Sri Sheo Sankar Routh

SOLID STATE PHYSICS

Prof. Bijoy Krishna Chaudhury
Dr. Subham Majumdar
Dr. Indra Dasgupta
Dr. Raja Paul
Prof. Monika Mukherjee
Prof. Ashwini Ghosh
Dr. Amlan Jyoti Paul
Dr. Durga Basak
Dr. Saurav Giri
Sri Subrata Paul
Smt. Sumita Roy Rakshit
Sri Prabir Kumar Roy
Sri Sujit Kumar Das
Sri Ranjit Chintamoni Ghosal
Sri Kalyan Bhattacharyya
Sri Prasad Kumar Modak
Sri Dilip Kumar Jadav
Sri Ajit Pandit*
Sri Subhasis Basu

Sri Niranjan Kurmi

SPECTROSCOPY

Prof. Krishna Rai Dastidar
Dr. Abhijit Kumar Das
Prof. Gautam Buddha Talapatra
Prof. Subir Kumar Roy
Prof. Sankar Chakravorty
Prof. Tapan Ganguly
Prof. Biswanath Mallik
Smt. Chandana Bhattacharyya
Smt. Mridula Majumder
Sri Dipak Majumder
Smt. Subhra Chakraborty
Sri Subrata Das
Sri Bikash Moitra
Sri Manash Kumar Ghosh
Sri Arup Kumar Bandyopadhyay
Sri Narayan Chandra Barik
Sri Chandrasekhar Naskar

ORGANIC CHEMISTRY

Prof. Amitava Sarkar
Prof. R.V. Venkateswaran
Dr. Parthasarathi Dastidar
Prof. Saswati Lahiri
Prof. Subrata Ghosh
Dr. Surajit Sinha
Prof. B.C. Ranu
Prof. Subhas Chandra Roy
Sri Swapan Pal
Sri Abhijit Basak
Sri Bijan Krishna Chandra
Sri Binoy Krishna Ghosh (Retired on
Sri Sandipan Seal
Sri Partha Pratim Bhattacharyya
Smt. Sujata Ghosh Roy*
Sri Ashis Kumar Pal
Sri Nirmalya Dutta
Sri Swapan Kumar Sarkar
Sri Mantu Kumar Naskar
Sri Sumit Roy
Sri Ranjit Kumar Dey
Sri Malay Chowdhury

INORGANIC CHEMISTRY

Prof. Sreebrata Goswami
Dr. Abhishek Dey
Dr. Tapan Kanti Paine
Dr. Pradyut Ghosh

Dr. Raju Mondal
Dr. Somdatta Ghosh Dey
Prof. Muktimoy Chaudhuri
Sri Tamal Chakraborty
Sri Sujit Kumar Bhattacharyya
Sri Dhananjoy Pramanik
Sri Pabitra Majumder
Sri Arup Kumar Nath
Sri Sachin Das
Sri Sanjit Chakraborty
Sri Sadhan Bhattacharyya
Sri Buddhadev Pathak
Sri Partha Mitra
Sri Goutam Biswas
Sri Prahlad Kumar Manna
Sri Tarak Nath

BIOLOGICAL CHEMISTRY

Prof. Manju Roy
Dr. Siddhartha Sankar Jana
Dr. Rupa Mukhopadhyay
Dr. Arindam Banerjee
Dr. Prasanta Kumar Das
Prof. Arun Kumar Guha (Retd. on 31.12.2009)
Sri Soumen Kumar Ghosh
Sri Saroj Kumar Saha
Sri Gour Chandra Bairagi
Sri Sujit Bag
Smt. Lily Sarkar
Sri Chanchal Kumar Das

CENTRE FOR ADVANCED MATERIALS

Prof. Surajit Sengupta

AWARDS & HONOURS

1. Professor D Mukherjee, Chairman, Raman Centre for Atomic, Molecular and Optical Sciences has been awarded the 2009 Chemical Pioneer Awards by the American Institute of Chemistry for his pioneering work in the Chemical Sciences.
2. Dr. P. Ghosh of the Inorganic Chemistry received the Swarnajayanti Fellowship of DST;
3. Dr. S. Ghosh and Dr. S. Malik of the Polymer Science Unit were elected Young Associates of the Indian Academy of Sciences;
4. Professor B. C. Ranu of Organic Chemistry has been awarded the silver medal of CRSI for the year 2010;
5. Dr. A. Banerjee of Biological Chemistry and Dr. A. Patra of Materials Science have been awarded the bronze medal of CRSI for the year 2010;
6. Professor A.J. Pal of Solid State Physics was invited as a member of the advisory editorial board of the journal "ACS- Applied Materials and Interfaces";
7. Dr. P. Dastidar of Organic Chemistry was invited to be the Associate Editor of Acta Crystallographica E;
8. Professor A. Ghosh of Solid Solid State Physics was elected as a member of the Indian Institute of Ceramics;
9. Professor K. Bhattacharyya has been inducted as a fellow of the TWAS.
10. Dr. Durga Basak, Dept. of Solid State Physics has been awarded TWAS-TWOS-SCOPUS young women researcher award organized by TWAS, TWOS, PSN, Elsevier.

11. Dr. A J Pal, Department of Solid State Physics has been elected as a fellow of the Indian Academy of Sciences for the year 2009.
12. Professor Bhupendra Nath Dev, Department of Materials Science has been awarded 2010 International Alumni Award for Exceptional Achievement, Albany, USA.
13. Dr. Abhishek Dey, Department of Inorganic Chemistry has been selected as a Young Associate of the Indian Academy of Sciences.
14. Dr. Ravi Kumar, a student of the Inorganic chemistry Department was selected as a Runners up for the Reaxys Ph.D prize for 2010.
15. Professor Kankan Bhattacharyya, Director, IACS has been awarded the INSA Golden Jubilee Commemoration Medal in Chemical Science.

PROJECTS

Sl. No.	Investigator In-charge	Title	Grant Received (in Lakh)	Expenditure (In Lakh)
CSIR PROJECT				
01	Prof. D.Das	Silicon Quantum dots in layer-by-layer growth scheme using flow-modulated Rf-Gd-Cvd:Preparation and Characterization	-	0.84
02	Prof. S. Goswami	Chemical Transformations of Coordinated Ligands with Special Reference to Carbon-heteroatom Bond Activation, Synthesis and Studies of DNA interactions	4.67	0.98
03	Prof. A.J.Pal	Photodetectors based on Organic Semiconductors		0.30
04	Dr. Raju Mondal	<u>Studies on Lanthanide Based Metal-Organic Framework</u>	7.75	0.62
05	Prof. B.K.Chaudhury	Study of Electro-Optic effects on Ferro and Antiferroelectric Liquid Crystals	-	2.0
06	Dr. S. Majumdar	Low Temperature Investigation of Magnetic Heusler Alloys	1.0	0.63
07	Prof. T. K. Mondal	Polymer/Peptide Templated synthesis size and shape-tunable Metal/Metal oxide nanoparticles	1.50	2.18
08	Prof. A. Ghosh	Study of Electrical properties of superionic glass nanocomposites	2.87	1.83
09	Prof. P. Chatterjee	Development of a global electrical-optical Computer Software for the Simulation and Optimisation of the performance of Heterojunction with Intrinsic Thin layers "HIT" Solar Cells	1.06	3.27
10	Prof. D. Basak	Studies on defects in ZnO Thin Films	2.62	2.66
11	Prof. M. Chaudhury	Studies on the metal complexes of sterically constrained phenol-based ligands	0.95	4.56
12	Prof. B. K. Chaudhuri	Synthesis Characterization impedance spectroscopic and related studies in some giant Dielectric materials suitable for application in microelectronics	-	3.06
13	Prof. D. Das	Development of Silicon Quantum Dots for Applications in Quantum-Effect Devices	1.64	4.70
14	Prof. M. Ray	Biosynthesis of creatine and related Metabolites in normal Tumour-bearing Animals	3.91	3.52
15	Prof. A. K. Nandy	Studies on Polymer Gel Nanocomposites-II	1.66	1.72
16	Dr. P. Ghosh	Development of new Amine and Amide	2.20	1.41

		based Tripodal Receptors for Recognition and Extraction of Halides		
17	Dr. R. Mukhopadhyay	Structural Alterations of DNA induced by Multinuclear Platinum Cancer Drugs: Effects Monitored at the single Molecule Level	1.38	2.18
18	Prof. M. Chaudhury	Studies on the metal complexes Ligands	2.0	2.08
19	Prof. A. K. Nandy	Studies on Polymer Gel Nanocomposites	1.04	-
	DST PROJECT			
01	Prof D. Mukherjee	INDO-Sweedish/ A study of magnetic properties of molecules using high level single and multireference quantum chemical methods	-	2.18
02	Prof.K.Bhattacharya	Femtosecond Laser Facility for studies in Supramolecules, Biological Assemblies and Nanomaterials	-	10.08
03	Prof. K.Nag	INSA Senior Scientist	4.4	3.03
04	Prof. T.K.Mondal	Peptide-Assisted Metal Nanobiocomposites Formation and their Template-based Self-Assembly	----	0.33
05	Prof. M.Ray	Biosoftening and Biobleaching/ brightening of coir fibre with a view to find diversified end uses of the fibre-Final phase	3.9	3.6
06	Prof. B.N.Dev	IACS-BARC Initiative for Research in Quantum Structure (IBIQUIS)	508.0	7.12
07	Prof.P.Chowdhury	Development of Secondary Reference Cell, Reference Module and Calibration facilities by Solar Energy Centre	-	33.45
08	Prof.M.Ray	Targated Drug Delivery of Nanoparticulate Formulations of Methylglyoxal and Assessment of their Antitumor Activities	-	19.96
09	Prof.D.D.Sarma	Indo-Italian Beamline at the ELETTRA Synchrotron Radiation Facility at Trieste, Italy	-	7.71
10	Prof. D.D.Sarma	Indo_Russian Study of microscopic phase separation and related magnetoelectric phenomena in manganese multiferroics	-	4.77
11	Prof.D.Chakraborty	Indo Russian Investigation on Synthesis and properties of magnetic nanostructures and nanocomposites by electromagnetic methods	4.45	0.53
12	Dr.T.Chakraborty	Ramanna Fellowship	11.0	15,83
13	Prof. S. Ray	Development of Nano and Microcrystal-line silicon based low cost, high efficiency thin film solar cells		0.13
14	Dr. R. Kolley	Gravity, cosmology and phenomenology in higher dimensions	-	2.32
15	Prof. A.Ghosh	Development of High Energy Density Lithium Ion Battery Technology	-	0.16
16	Prof. A. J. Pal	Ramanna Fellowship	-	6.76
17	Dr.R.Mondal	Synthesis, Characterization and Reactivity Studies of Porous, Multifunctional Metal-Organic Frameworks	4.0	4.12
18	Prof. A. K. Barua	ADA/Post coating process integration and further optimization/qualification of process methodology in the ITO coating facility set up at HAL Aircraft Division-PV3/PV5 (80/675)	-	5.78

19	Dr.A.Bhowmik	Ramanna Fellowship	-	0.99
20	Prof. D. Das	Development of nano-silicon structures as new quantum effect materials by ICP-CVD	30.0	20.3
21	Dr. P.K.Das	Ramanna Fellowship	10.0	10.1
22	Prof.S.Ray	High Resolution X-Ray Powder Diffractometer – An experimental facility for materials science applications	3.0	3.23
23	Prof. S.Goswami	Design of azoaromatic ligands, metal promoted synthesis, their coordination and search for application	6.0	8.71
24	Prof.S.Ghosh	Ramanna Fellowship	11.8	13.94
25	Prof. G.P.Das	CRP-Spintronics Materials – Simulation and Design of Spintronics Materials	3.87	4.85
26	Prof.S.Lahiri	Exploring chromophore-Selective in bichromorphic enones: Limitations and advantages	5.0	2.41
27	Prof.D.D.Sarma	CRP-Spintronics Materials – Preparation and Characterization of Double Perovskite based Spintronic Materials	3.98	0.23
28	Dr.R.Mukherjee	Structural studies of proteins of unknown structure at single molecule level by high resolution scanning probe microscopy: Development of a protein structure characterization tool	3.0	3.29
29	Prof.B.C.Ranu	J.C.Bose Fellowship		6.64
30	Prof. A.Sarkar	Organometallic bioconjugates and functional self-assembled monolayers on curved and flat surfaces	----	19.0
31	Prof.D.D.Sarma	J.C.Bose Fellowship	5.0	8.98
32	Dr. R. Gangopadhyay	Conducting polymer nanowires on nano-bio interface	4.0	7.0
33	Dr. S. Adhikari	Formulation of quasi-adiabatic and quasi-diabatic born-oppenheimer equation and the implementation of a quantum-classical (TDDVR) approach on relatively large molecular system	6.5	6.97
34	Prof. D. D. Sarma	Indo-Japan Understanding novel magnetic oxide nano-materials : Spectroscopy and ab-initio theories	1.13	0.64
35	Prof. G.B.Talapatra	Development and characterization of phospholipids based bio-membrane using langmuir-blodgett technique	5.0	6.23
36	Prof.B.C.Ranu	Expert Committee Meeting	-	0.06
37	Dr.S.Majumdar	Low temperature investigations of the magnetic and electronic behaviour of transition metal based low dimensional oxides	----	0.85
38	Prof. A. J. Pal	Samsung Proect	-	0.76
39	Prof. A. Sarkar	Organometallic bioconjugates and functional self-assembled monolayers on curved and flat surfaces	5.0	6.0
40	Prof.M.Ray	Agreement between Lifecare and IACS (LIPL)	3.6	7.57
41	Prof. T.Chakraborty	Photolesion of microhydrated DNA building blocks in an ion guide	-	14.16
42	Prof. M. Ray	COIR Board – Phase-II	1.95	2.53
43	Prof.D.Mukherjee	J.C.Bose Fellowship	8.0	7.81
44	Dr. A. Patra	Decay dynamics of nanomaterials for nanophotonic and biophotonic applications	-	3.53
45	Prof. B. N. Dev	Nanoscale Magnetic Domain Characterisation for Future Devices	-	4.22
46	Prof.K.Bhattacharya	J.C.Bose Fellowship	8.0	10.88

47	Prof.D.Chakraborty	INSA Senior Scientist	0.50	0.50
48	Prof. D. Chakravorty	Investigation on Synthesis and Properties of Magnetic Nanostructures and Nanocomposites by Electromagnetic Method	-	2.43
49	Prof. K. Bhattacharya	INDO-JAPAN Meeting Expenditure	-	0.02
50	Dr. Manju Ghosh	WOS Project "An approach to optically active B-substituted α -methylene γ -lactones and its application in synthesis of bio-active compounds"	4.56	4.56
51	Prof. A. J. Pal	Memory and Switching applications of organic semiconductors	3.02	2.01
52	Prof.D.Chakraborty	UNANST Project	60.0	1.62
53	Dr. Manas Mukherjee	INDO-MPG Project	0.52	-
54	Dr. Sugata Ray	Designing possible high temperature multiferroic materials employing unconventional high temperature magnetism	13.90	10.95
55	Dr. N. Pradhan	Growth mechanism for size/shape control and doping in colloidal crystals using single and multi-source precursors	-	3.97
56	Prof. A.K.Nandy	Studies on superamolecular polymers and their blends	-	3.03
57	Dr. P. K. Das	Effects of headgroup architecture on DNA-cationic amphiphile interaction: Relevance to DNA condensation and cationic amphiphile based gene delivery systems	3.34	1.45
58	Dr. A. Patra	Ramanujan Fellowship	7.5	5.38
59	Prof.P.K.Mukherjee	Spectroscopy of atomic systems under external confinement; Effect of plasma	-	2.17
60	Prof. A. Sarkar	UKIERI – Ligated Nanoparticle Catalysts: New Approaches to Fine Chemical Synthesis	-	3.97
61	Prof. T. Chakraborty	DRDO-Development of a Cavity Ring – Down infrared Spectrometer for Probing the early steps of Aerosol formation in Polluted Urban Atmosphere	-	29.94
62	Dr. S. S. Jana	Role of Nonmuscle Myosin IIs in virus-cell fusion	87.27	84.53
63	Dr.T.K.Paine	Design and synthesis of model complexes for mononuclear nonheme Iron (II) enzymes with the 2-His-1-carboxylate facial triad motif: Dioxygen activation and application in homogenous catalytic oxidation	2.0	5.19
64	Prof. S.C.Ray	Asymmetric synthesis of Bis- γ -butyrolactones and related natural products through radical cyclization of epoxides using Ti(III) radical source	-	3.07
65	Prof.D.D.Sarma	Centre for Nano Technology for Photovoltaics and Sensor Devices at Indian Association for the Cultivation of Science, Kolkata	-	1.00
66	Prof.B.C.Ranu	Non-hazardous bromide/bromate couple obtained as intermediate of bromine recovery plants: Exploratory studies on diverse applications	5.5	3.14
67	Dr. Sugata Ray	Probing the 4d and 5d magnetism in prototypical...using Neutron Diffraction	0.35	-
68	Prof.M.Ray	Understanding the possible alteration(s) of mitochondrial complex I of malignant cells at the level of protein and nucleic acid		4.43

69	Dr.B.Das	Theoretical modeling of molecular-wire based sensors and study of electronic conductance	-	3.66
70	Prof.R.V.Venkateswaran	Synthesis of allelopathic and related substances	1.22	1.90
71	Prof.P.Choudhury	Technology transfer of a deposition process to solar energy conversion industries	1.0	5.36
72	Dr.R.Chatterjee	Isolation & Characterization of antiulcer molecule from Neem leaf extract	-	2.35
73	Prof.M.Chaudhury(Jointly)	National Single Crystal X-ray Diffraction Facility	10.0	1.78
74	Prof.S.Ray	Metal Induced crystallization amorphous silicon for application in solar cells	3.0	2.82
75	Dr.P.Dastidar	Supramolecular synthesis and characterization of coordination polymers: From structural framework to functional framework	-	2.42
76	Prof. D. Basak	Investigation on the prospects of p-type ZnO films grown by RF magnetron sputtering technique	3.0	4.14
77	Dr. P. Ghosh	Design and synthesis of receptors for recognition of tetrahedral and planar oxyanions		1.68
78	Prof. S.Giri	Mossbauer studies of nano-structured materials	7.0	7.06
79	Dr. S. Mukhopadhyay	Development of wide bandgap a-SiO ₂ :H thin films as intrinsic layer of solar cell	7.9	5.23
80	Prof. D.Mukherjee	Indo-Hungarian –The theory of Electron Correlation and its applications in Molecular and Nanoscience	-	1.23
81	Dr. S.Sinha	Synthesis and biological evaluation of indolo-azepines and its derivatives including iboga-alkaloids	5.0	10.84
82	Prof. T.Chakraborty	Indo-German-Spectroscopy and Photophysics of Atmosphere-Sensitive Molecules and Clusters in the Gas-Phase	-	0.63
83	Prof. D.D.Sarma	DST-DFG-Soft X-ray spectroscopy on self-assembled nanoparticles	-	1.93
84	Prof. D. Chakraborty	INDO-Austalian Project “ Nano-Composites materials for clear energy: Energy Generation, Storage, Saving and safety”	25.0	-
85	Dr. Manas Mukherjee	Sympathetic cooling and molecular spectroscopy	110.0	44.80
86	Dr. Suparna Guha	WOS Project “ATRP under green conditions”	6.29	2.74
87	Prof. Swati Ray	Development of Integrated Micromorph Tandem 1ftx1ft Solar Modules	88.5	49.17
88	Prof. A. Sarkar	IFCPAR Project “Practical Methods for Surface Biofunctionalisation	21.12	16.60
89	Prof. Indra Dasgupta	INDO-EU Project “Modeling Nano Structured Advanced Materials Intelligently (Monami)	151.0	5.41
90	Dr. A. Bhaumik	INDO-Japan Project “ Applications of mesoporous zeolitic materials to catalysis”	1.0	0.75
91	Dr. N. R. Jana	Development of anisotropic metal nanoparticle based molecular markers for cell imaging application	53.14	34.57
92	Dr. S. S. Jana	Deciphering signaling pathway that	12.84	4.48

		regulates nonmuscle myosin II-CI during cytokinesis in tumor cells		
93	Dr. A. J. Pal	Current voltage characteristics of semiconducting nanoparticles	79.0	1.01
94	Dr. A. J. Pal	DRDO/CARS Project "Photovoltaic studies of carbon based nanostructured materials, inorganic nanotubes and nanowires"	6.00	3.21
95	Dr. R. Mukhopadhyay	Sensitivity Enhancement in a Piezoresistive Cantilever-based Nanomechanical Sensor Assay for Label-Free Detection of Nucleic Acid Sequences	49.24	4.43
96	Dr. Tanwi Ghosh	Studies of thermodynamical properties of 4D and higher dimensional black holes	4.0	1.33
97	Dr. T. K. Mondal	Synthesis of nanostructured metals/metal oxides for catalysis/photocatalysis	41.0	2.97
98	Dr. P. Dastidar	Developing Metal-Organic Frameworks for anion separation	18.0	10.98
99	Dr. D. Basak	DAE Project "Photoconductivity and photoluminescence studies on ZnO based Nanocomposites	12.75	0.62
100	Dr. A. J. Pal	Hybrid structures : Use of semiconducting nanoparticles in Donor/ Acceptor-type Organic Solar Cells	26.37	2.1
101	Dr. S. Adhikari	DAE Project "Structure and photo-dynamics of small polyatomics using parallelized quantum classical approach"	12.13	0.50
102	Dr. N. R. Jana	Synthesis of functional nanoparticle and quantum dot for biomedical application	22.0	14.73
103	Dr. K. Sengupta	Electronic properties of strongly correlated systems	12.5	8.70
104	Dr. Suhrit Ghosh	Supramolecular organization of organic dye molecules on macromolecular scaffold; implications in orthogonal self-assembly of p-and n-type organic semiconductors	15.55	16.09
104	Prof. B. N. Deb	IACS-BARC Initiative for Research in Quantum Structures (IBIQUUS)	508.0	16.09
105	Prof. Swati Ray	Nanostructured Silicon Thin Films for Low Cost Third Generation Solar Cells	9.2	4.92
106	Dr. P. Ghosh	Development of capsular aggregates for trapping anionic intermediates/products and dual receptor systems for alkali metals salts	66.6	3.47

DEPARTMENT OF THEORETICAL PHYSICS

P H O T O

Soumitra Sen Gupta
Sr. Professor & Head
*Supergravity, String Theory, Gravity,
Cosmology, Braneworld, Blackholes*

J Mitra, SRF; A.Das, JRF; Md. W Hossain

Fields, String, Cosmology, etc. :

Extra dimensional model with warped geometry is one of the attractive candidates to explain hierarchy problem in standard model and has drawn immense attention for a possible signature

Antihydrogen Formation :

We study quantum mechanically for the first time, the antihydrogen (H) Formation cross sections in ground and excited (2s, 2p) states via the Three Body Recombination process inside a trapped plasma of antiproton

P H O T O

Chandana Sinha
Sr. Professor
*Atomic collisions with electrons
Positrons and ions and also in
presence of laser field, Quantum*

S Ghosh Deb, SRF; Sushmita Roy

P H O T O

Koushik Ray
Associates Professor
D-Branes and String Theory

S Paulchoudhury, SRF; P Ghosh, SRF

Fields, String, Cosmology, etc.

The BLG theory is a three-dimensional Chern-Simons theory with matter, deemed to be describe the world-volume of M2 Branes of the eleven-dimensional M-theory. Gauge-invariant moduli spaces of scalars in the BLG theory with and without
