

SCHOOL OF PHYSICAL SCIENCES

Dean : Professor K. Ismail
Telephone : 2722501 (O), 9436103293 (Mobile), 2550486 (Fax)
E-mail : kismail@nehu.ac.in

The Departments of Chemistry, Mathematics, Physics and Statistics and the Centre for Science Education form the School of Physical Sciences. All the Departments are involved in Post-graduate teaching programmes and research activities in the chosen thrust areas, whereas the Centre conducts remedial courses besides being involved in research activity. The research output of the faculty members of the School has been significant as evident from (i) the research publications in scientific journals of high standard, (ii) the plenary/invited talks delivered at various national/international conferences/seminars and (iii) the substantial amount of funds received through research projects, Special Assistance Programme of the UGC, FIST programme of the DST and National Board of Higher Mathematics, DAE. Many faculty members have collaborative research programmes with other national/international institutions. The School interacted with the School of Life Sciences during the National Science Day celebration.

DEPARTMENT OF CHEMISTRY

Head : Professor R. H. Duncan Lyngdoh
Telephone : 2722601(O), 9436333332 (M)
E-mail : rhdl@nehu.ac.in

Thrust Areas of Research : Chemistry of Surfactants, Coordination Chemistry, Natural Products, Theoretical Organic Chemistry, Organometallic Chemistry, Theoretical Reaction Kinetics, Heterocyclic Chemistry, Dynamics of Excited States, Photocatalysis.

Brief Statement of Academic Activities : The Department offers M. Sc. and Ph. D. programmes. One student qualified the UGC NET Fellowship examination and 3 students were selected for the Rajiv Gandhi Fellowship. UGC has continued its support to the Department under the SAP-DSA programme during this year. There are individual research schemes funded by DST, NEC and CSIR.

Faculty :
Professors : K. Ismail, M. Sc., Ph. D. (AMU)
R. K. Poddar, M. Sc., Ph. D. (IIT Kanpur)
B. Myrboh, M. Sc., Ph. D. (NEHU)
R. H. Duncan Lyngdoh, M. Sc. (NEHU), Ph. D. (IIT Madras)
R. A. Lal, M. Sc., Ph. D. (BHU)
K. Mohan Rao, M. Sc. (S.V. Univ.); Ph. D. (IIT Kanpur)

Readers : A. Lemtur, M. Sc., Ph. D. (NEHU)
 A.K. Chandra, M. Sc., Ph. D. (Burdwan)
 Ghanashyam Bez, M. Sc., Ph. D. (Gau)
 Lecturers : T. S. Basu Baul, M. Sc. (Jabalpur), Ph.D. (N. Bengal)
 R. L. Nongkhlaw, M. Sc., Ph. D. (NEHU)
 E. K. Rymmai, M. Sc. (NEHU)
 D. P. S. Negi, M. Sc. (Roorkee), Ph. D. (IIT Roorkee)
 S. Mitra, M. Sc. (Vidya Sagar), Ph. D. (IACS)
 H. Askari, M. Sc., Ph. D. (AMU)
 M.K. Sahoo, M.Sc. (Utkal), Ph.D. (Comenius, Czechoslovakia)
 Mr. Biplob Sarkar, M. Sc. (N. Bengal)

Visiting Professors/Fellows/Scholars : Prof. P. Pramanik (IIT, Kharagpur), Prof. P. S. Kalsi (retired Professor from Punjab Agricultural University), Prof. K. Bhattacharya (Calcutta University), Prof. Nashreen S. Islam (Tezpur University) and Prof. O. K. Medhi (Gauhati University) visited the Department as resource persons for the Refresher Course. Prof. Amit Basak (IIT Kharagpur) and Prof. P. Gautam (Anna University, Chennai) visited the Department and gave lectures. Dr. L. Warjeet Singh (Manipur University), Prof. P. K. Gogoi (Dibrugarh University), Prof. N. K. Chattopadhyay (Jadavpur University) and Prof. Zafar Ahmad Siddiqui (AMU) visited the Department for conducting practical examinations and evaluation of M.Sc. Project Work. Prof. Samaresh Bhattacharya (Jadavpur University) and Prof. S. P. Bhattacharyya (IACS, Kolkata) visited the Department as UGC Nominees for the Advisory Committee Meeting of the UGC-DSA-SAP programme. Prof. S. Bagchi (IISER, Kolkata) and Prof. A. T. Khan (IIT Guwahati) also visited the Department in connection with the BPGS meeting.

Student intake:

Enrolment capacity: M. Sc.: 32 Ph. D.: Variable Outside
 Actual Admission : SC ST OBC Gen Male Female Meghalaya Meghalaya
 M. Sc.: 01 25 -- 06 18 14 18 14
 Ph. D.: -- 04 01 04 05 04 04 05

Degrees Awarded :

	SC	ST	Gen	Male	Female	Total
M. Sc.:	--	18	03	08	13	21
Ph. D.:	--	02	01	03	--	03

Mr. K. Pachhunga, "Synthesis, spectral and structural studies of n^5 and n^6 -cyclic-hydrocarbon complexes of some platinum group metals with N, N and O,O donor bidentate ligands". Supervisor: Prof. K. M. Rao.

Mr. Keisham Surjit Singh Singh, "Synthesis and reactivity studies of organotin (IV) complexes of 2-[(E)-2(3-formyl-4-hydroxy)-1-diazenyl]benzoic acid and related systems: Assessment of bonding, structure and biological applications". Supervisor: Dr. T. S. Basu Baul.

Mr. Wandondor Rynjah, "Organotin (IV) complexes of 5-[(E)-2-(aryl)-1-diazenyl]-2-hydroxy benzoic acid: Synthesis, characterization, reactivity and anticancer activities". Supervisor: Dr. T. S. Basu Baul.

Placement of Students : Mr. Pushpak Mizar and Mr. Tavishe Phucho joined the Department of Chemistry, Nagaland University, as Lecturers. Many M. Sc. students passing out from this Department have been placed as Teachers in colleges and schools, as Scientists in research organizations, and as Research Scholars in this Department and elsewhere.

Courses conducted :

Semester I – Inorganic Chemistry-I, Organic Chemistry-I, Physical Chemistry-I, Quantum Chemistry, Laboratory Course in Physical Chemistry.

Semester II – Inorganic Chemistry-II, Organic Chemistry-II, Physical Chemistry-II, Molecular Spectroscopy, Laboratory Course in Organic Chemistry.

Semester III – Inorganic Chemistry-III, Organic Chemistry-III, Physical Chemistry-III, Applications of Spectroscopic Methods, Laboratory Course in Inorganic Chemistry.

Semester IV – Environmental Chemistry, Computer Programming in Chemistry, Elective Courses: Bioinorganic Chemistry, Organometallic Chemistry, Natural Products Chemistry, Advanced Spectroscopy, Solid State Chemistry. Project Work in Inorganic, Organic and Physical Chemistry.

Study Tour/Field Trips : Dr. M. K. Sahoo took the M. Sc. students of third Semester for a Study Tour to Mumbai and Goa during the period 26th January 2008 to 18th February 2008. The team visited the National Institute of Oceanography, Goa, Bhabha Atomic Research Centre, Mumbai, Tata Institute of Fundamental Research, Mumbai, and Nehru Science Centre, Mumbai.

Seminars/Conferences/Symposia/Extension Programmes, etc. :

Attended

Prof. K. Ismail attended the International Symposium on Recent Trends in Surface and Colloid Science held at the Indian Statistical Institute, Kolkata during November 15-16, 2007 and delivered an Invited Lecture on "Micellization characteristics of sodium dioctylsulfosuccinate: single and mixed systems".

Prof. K. Ismail attended the International Conference on Soft Systems held at Jadavpur University, Kolkata during February 13-15, 2008 and chaired a technical session.

Dr. T. S. Basu Baul attended the Twelfth International Conference on the Coordination and Organometallic Chemistry of Germanium, Tin and Lead (ICCOC-GTL-12) at the National University of Ireland (Galway) held from 9-13 July, 2007, and presented a poster entitled "Molecular Architectures in

Organotin (IV) Carboxylates derived from Schiff Bases containing Amino Acid Moiety”.

Dr. T. S. Basu Baul attended the International Conference on the Applications of the Mossbauer Effect held at the Indian Institute of Technology, Kanpur from 14-19 October, 2007, and presented a paper entitled “Sn Mossbauer Characterization of Self-Assembled Organotin (IV) Complexes with Schiff Bases containing Amino Acetate Skeletons”.

Dr G. Bez delivered an Invited Talk on “Fructose Derived Amine as Stereoselective Catalyst for Asymmetric Epoxidation of Olefins in Presence of Oxone” at the CRSI Mid-Term Symposium held at the Indian Institute of Technology, Guwahati, Assam.

Dr. H. Askari participated in the 10th CSRI National Symposium in Chemistry held from 1-3 February, 2008, at the Indian Institute of Science, Bangalore, and presented a poster entitled “Kinetics and Mechanism of Reactions between 4-Nitrophenol and Carbonates of Nickel, Zinc and Cadmium in Solid State”.

Dr. S. Mitra delivered two Lectures on (i) “Spectroscopy of *trans*-Ethyl *p*-(dimethylamino) cinnamate in Various Solvents” and (ii) “Experimental and Computational Studies on Representative Intramolecular Photoprocesses” at the Trombay Symposium on Radiation and Photochemistry (TSRP-2008) held from 7-11 January, 2008, at Pune, India.

Mr. Jahar Dey (Supervisor Prof. K. Ismail) presented a poster on “Conductance behaviour of anionic surfactants in presence of two counterions” at the International Symposium on Recent Trends in Surface and Colloid Science held at the Indian Statistical Institute, Kolkata during November 15-16, 2007.

Publications :

Published in India

Singh, M. K., Bhaumik S., Lal R. A. 2007. Synthesis and characterization of *tris*[N-(2-oxo-1-naphthylidene)glycinato]manganese (III) and its reaction products with oxygen, nitrogen and/or sulphur donors. *J. Indian Chem. Soc.*, 84: 418-426.

Published abroad

Nongkhlaw R. L., Myrboh B. 2007. Novel one pot synthesis of substituted 1,2,4-triazines. *Heterocyclic Comm.*, 12: 67-72.

Mitra S., Sanjoy Singh T., Mandal A., Mukherjee S. 2007. Experimental and computational study on photophysical properties of substituted *o*-hydroxy acetophenone derivatives: Intramolecular proton transfer and solvent effect. *Chem. Phys.*, 342: 309.

Sanjoy Singh T., Mitra S. 2007. Fluorescence behavior of intramolecular charge transfer state in *trans*-ethyl *p*-(dimethylamino)cinnamate. *J. Luminescence*, 127: 508.

- Govindaswamy P., Mozharivskyj Y. A., Rao K. M. 2007. New pentamethylcyclopentadienyl rhodium and iridium complexes containing arylazoimidazole ligands: Crystal and molecular structure of the complex $[(\eta^5\text{-C}_5\text{Me}_5)\text{RhCl}(\text{Me-C}_6\text{H}_4\text{-N=N-C}_3\text{H}_3\text{N}_2)]^+$. *Polyhedron*, 26: 5039-5044.
- Pachhunga K., Therrien B., Kreisel K. A., Yap P.A., Rao K. M. 2007. Reactivity studies of cyclopentadienyl ruthenium(II), osmium(II) and pentamethyl-cyclopentadienyl iridium (III) complexes towards 2-(2'-pyridyl)imidazole derivatives. *Polyhedron*, 26: 3638-3644.
- Chandra A. K., Parveen S., Zeegers-Huyskens T. 2007. Anomeric effects in the symmetrical and asymmetrical structures of triethylamine. Blue-shifts of the C-H stretching vibrations in complexed and protonated triethylamine. *J. Phys. Chem. A*, 111: 8884-8891.
- Chandra A. K., Zeegers-Huyskens T. 2007. Theoretical study of the acidity and basicity of uric acid and its interaction with water. *J. Mol. Struct. THEOCHEM*, 811: 215-221.
- Chandra A. K., Nguyen M. T. 2007. Use of DFT-based reactivity descriptors for rationalizing radical addition reactions: Applicability and difficulties. *Faraday Discussions*, 135: 191-201.
- Lal R. A., Basumatary D., De A. K., Kumar A. 2007. Synthesis and spectral characterization of zinc(II), copper(II), nickel(II) and manganese(II) complexes derived from bis(2-hydroxy-1-naphthaldehyde) malonoyldihydrazone. *Transition Metal Chemistry*, 32: 481-493.
- Umlong I. M., Dey J., Chanda S., Ismail K. 2007. Micellization behavior of AOT in the presence of sodium citrate. *Bull. Chem. Soc. Japan*, 80: 1522-1526.
- Basu Baul T. S., Rynjah W., Song X., Eng G., Linden A. 2007. Synthesis and spectroscopic characterization of some triorganotin(IV) 5-[(E)-2-(4-methylphenyl)-1-diazenyl]-2-hydroxybenzoates. Crystal and molecular structures of $(\text{Me}_3\text{Sn}\{\text{O}_2\text{CC}_6\text{H}_3\text{-}p\text{-OH}[\text{N}=\text{N}(\text{C}_6\text{H}_4\text{-4-CH}_3)]\})_n$, $\text{Et}_3\text{Sn}\{\text{O}_2\text{CC}_6\text{H}_3\text{-}p\text{-OH}[\text{N}=\text{N}(\text{C}_6\text{H}_4\text{-4-CH}_3)]\}\text{OH}_2$ and $\text{Bz}_3\text{Sn}\{\text{O}_2\text{CC}_6\text{H}_3\text{-}p\text{-OH}[\text{N}=\text{N}(\text{C}_6\text{H}_4\text{-4-CH}_3)]\}$. *J. Organomet. Chem.*, 692: 3392-3399.
- Jirásko R., Holčápek M., Basu Baul T. S. 2007. Electrospray ionization multistage tandem mass spectrometry of complex multitin organometallic compounds. *J. Mass Spectrom.*, 42: 918-928.
- Basu Baul T. S., Rynjah W., Rivarola E., Pettinari C., Holčápek M., Jirásko R., Englert U., Linden A. 2007. Di-n-octyltin(IV) complexes with 5-[(E)-2-(Aryl)-1-diazenyl]-2-hydroxybenzoic acid: Syntheses and assessment of solid state structures by ^{119}Sn Mössbauer and X-ray diffraction, and further insight into the solution structures using electrospray ionization MS, ^{119}Sn NMR and

Variable temperature NMR spectroscopy. *J. Organomet. Chem.*, 692: 3625-3635.

Basu Baul T. S., Masharing C., Ruisi G., Jirásko G., Holčapek M., de Vos D., Wolstenholme D., Linden A. 2007. Self-assembly of extended Schiff base amino acetate skeletons, 2-{[(2Z)-(3-hydroxy-1-methyl-2-butenylidene)]amino}phenylpropionate and 2-{[(E)-1-(2-hydroxyaryl)alkylidene]amino}phenylpropionate skeletons incorporating organotin(IV) moieties: Synthesis, spectroscopic characterization, crystal structures, and in vitro cytotoxic activity. *J. Organomet. Chem.*, 692: 4849-4862.

Basu Baul T. S., Basu S., Tiekink E. R. T. 2007. Methyl 2-[(E)-2-(3-formyl-4-hydroxyphenyl)diazenyl]benzenzoate, *Acta Crystallogr.*, E63: o3358.

Basu Baul T. S., Mizar A., Tiekink E. R. T. 2007. 5-[(E)-2-(2-carbomethoxyphenyl)-1-hydrazone]quinolin-8-one. *Acta Crystallogr.*, E63, o4256.

Basu Baul T. S., Masharing C., Basu S., Pettinari C., Rivarola E., Chantrapromma S., Fun H. K. 2008. Synthesis, characterization of some diorganotin(IV) complexes of Schiff bases derived from a non-protein amino acid. Crystal structures of {HO₂CC₆H₄[N=C(H)] {C(CH₃)CH(CH₃)-3-OH]-p} and its di-*n*-butyltin(IV) complex ("Bu₂Sn{O₂CC₆H₄[N=C(H)] {C(CH₃)CH(CH₃)-3-OH]-p}₂). *Appl. Organomet. Chem.*, 22: 114-121.

Romero I., Rodriguez M., Sens C., Mola J., Rao K. M., Francas L., Marza E. M., Escriche L., Llobet A. 2008. Ruthenium complexes that can catalytically oxidise water to molecular dioxygen. *Inorg. Chem.*, 47: 1824-1834.

Basu Baul T.S., Masharing C., Rivarola E., Smith F.E., Butcher R.J. 2008. Synthesis and Characterization of Tribenzyltin(IV) and Dibenzyltin(IV) Complexes of 2-{[(2Z)-3-hydroxy-1-methyl-2-butenylidene]amino}acetic acid. Crystal Structure of Tribenzyl{2-{[(2Z)-3-hydroxy-1-methyl-2-butenylidene]amino}acetate}tin(IV). *Struct. Chem.*, 18: 231-235.

Basu Baul T.S., Mizar A., Rivarola E., Englert U. 2008. Re-visiting of 5-[(E)-2-(aryl)-1-diazenyl]-quinolin-8-ol with tweaking of Sn-Ph groups: Synthesis, spectroscopic characterization and X-ray crystallography. *J. Organomet. Chem.*, 693: 1751-1758.

Basu Baul T.S. 2008. Anti-microbial activity of organotin(IV) compounds: a review. *Appl. Organomet. Chem.*, 22: 195-204.

Koch B., Basu Baul T.S., Chatterjee A. 2008. Cell proliferation inhibition and antitumour activity of novel alkyl series of diorganotin(IV) compounds. *J. Appl. Toxicol.*, 28: 430-438.

Funds Received from Agencies other than NEHU/UGC :

Prof. K. M. Rao. Synthesis, reactivity and structural studies of complexes of ruthenium and osmium containing η^5 and η^6 -cyclic hydrocarbons. DST (Rs 3.00 lakhs).

Dr. T.S B. Baul. Exploration on organotin carboxylates as a viable building block for the constructing homo and heteronuclear supramolecules: Synthesis, structures and Biological properties. DST (Rs.5.00 lakhs).

Dr. D. P. S. Negi. Investigation of photophysical and photocatalytic properties of colloidal semiconductors. SERC Fast Track proposal for Young Scientists, DST (Rs.1.5 lakhs).

Dr. S. Mitra. Spectroscopic characterization of intramolecular charge transfer type polarity sensors and their use in the study of protein-surfactant interaction. CSIR (Rs.1.92 lakhs).

Prof. K. Ismail. Counterion binding-interfacial property correlation for AOT micelles. DST (Rs.16.5 lakhs)

Dr. A.K. Chandra. Studies on the kinetics and mechanism of hydrogen abstraction reactions of halo-carbons with OH Radicals and Cl atoms. DST (Rs.2.62 Lakhs).

Dr. G. Bez. Solid phase intramolecular Wittig reaction using novel triphenylphosphines: a study on synthesis of macrocyclic library. DST (Rs.9 Lakhs).

Dr. G. Bez. Asymmetric epoxidation of olefins with oxone in presence of *in situ* generated iminium salts from chiral aldehydes and amines. CSIR (Rs.1.43 lakhs).

UGC-SAP-DSA Phase-III Programme 2007-08 from UGC (Rs.50.75 lakhs).

Special grant from UGC for strengthening of infrastructure (Rs.20.00 lakhs).

Special grant from UGC for strengthening of infrastructure (Rs.30.00 lakhs).

Infrastructural Facilities :

The following instruments have been acquired and installed:

Perkin-Elmer Lambda 25 UV-Vis Spectrophotometer

Milli-Q Water Purification System

Hitachi U-2900 UV/VIS

Julabo Heating & Refrigerated Circulator

Millipore Elix-3 Water Purifier

Research Projects :

Ongoing

Studies on the kinetics and mechanism of hydrogen abstraction reactions of halo-carbons with OH Radicals and Cl atoms. Principal Investigator: Dr. A.K. Chandra. Sponsored by DST, New Delhi.

Exploration on organotin carboxylates as a viable building block for constructing homo- and hetero-nuclear supramolecules: Synthesis, structures and biological properties. Principal Investigator: Dr. T.S.B. Baul. Sponsored by DST, New Delhi.

Investigation of photophysical and photocatalytic properties of colloidal semiconductors (under SERC Fast Track proposal for Young Scientists). Principal Investigator: Dr. D. P. S. Negi. Sponsored by DST, New Delhi.

Spectroscopic characterization of intramolecular charge transfer type polarity sensors and their use in the study of protein-surfactant interaction. Principal Investigator: Dr. S. Mitra. Sponsored by CSIR, New Delhi.

Asymmetric epoxidation of olefins with oxone in presence of *in situ* generated iminium salts from chiral aldehydes & amines. Principal Investigator: Dr. G. Bez. Sponsored by CSIR, New Delhi.

Synthesis, reactivity and structural studies of complexes of ruthenium and osmium containing η^5 and η^6 -cyclic hydrocarbons. Principal Investigator: Prof. K. M. Rao. Sponsored by DST, New Delhi.

New

Counterion binding-interfacial property correlation for AOT micelles. Principal Investigator: Prof. K. Ismail. Sponsored by DST, New Delhi.

Solid phase intramolecular Wittig reaction using novel triphenylphosphines: a study on synthesis of macrocyclic library. Principal Investigator: Dr. G. Bez. Sponsored by DST, New Delhi.

Construction and multisite commissioning multiple fluorescence correlation spectrophotometers (a single molecule biophotonic tool), Co-Investigator: Dr. S. Mitra. Sponsored by Deptt. of Information & Technology, Ministry of Communications & Information Technology, Govt. of India, New Delhi.

Completed

Excited state properties and relaxation dynamics of intramolecular hydrogen bonded azo-derivatives. Principal Investigator: Dr. S. Mitra. Sponsored by DST, New Delhi.

Academic/Professional Collaborations :

Prof. K. M. Rao has academic collaboration with Dr. Therrien Bruno, Institut de Chimie, Université de Neuchâtel, Switzerland. Prof. R.H. Duncan Lyngdoh is in collaboration with Prof. H.F. Schaefer, Director, Centre for Computational Chemistry, University of Georgia, USA, and has worked on a review of high level quantum chemical studies on radical ion constituents of DNA. Dr. A.K. Chandra has research collaboration with the Computational Chemistry Group of the University of Leuven, Belgium. Dr. S. Mitra has research collaboration with Prof. N. Tamai (Kwansei Gakuin University, Japan), Prof. S. Mukherjee, (IACS, Kolkata) and Dr. S. Kar (ChemGen Pharma International, Kolkata). Dr. A. Lemtur has research collaboration with the Department of Science and Technology, Government of Nagaland. Dr. M. K. Sahoo is collaborating with Dr. D. B. Naik of the Radiation and Photochemistry Division, BARC, and with the National Centre for Free Radical Research, Pune University.

Other Activities : Under an Academic Exchange Programme, a research student of the Department, Ms. Archana Mizar (Supervisor Dr. T. S. Basu Baul), was selected to work for one year from December 2007 at the Department of Chemical Sciences, University of Camerino, Italy, under supervision of Prof. C. Pettinari. A Refresher Course in Chemistry was coordinated by the Department (Course Coordinator: Prof. K. M. Rao) from 20th September to 12th October, 2007 and 29 teachers, both from colleges and universities, participated in it.

DEPARTMENT OF MATHEMATICS

Head : Professor H.K. Mukerjee
Telephone : 2722714 (O), 2722719 (O), 2550070 (R)
Email : himadri@nehu.ac.in

Thrust Areas of Research in the Department : Thrust areas of research in the department are: Algebra, Algebraic and Differential Topology, Cosmology, Number Theory, and Oceanography.

Brief Statement of Academic Activities : The Department continues to give quality and rigorous M.Sc./ M.Phil. and Pre Ph.D. courses of different areas of mathematics like Algebra, Analysis, Complex Function Theory, Differential Equations, Linear Algebra, Mechanics, Number Theory, Numerical Analysis and Computer Programming, Oceanography, Relativity and Cosmology, Topology, Algebraic Topology, Differential Topology, Commutative Algebra, Character theory, p -adic analysis. The Department conducted regular seminar and colloquia on the topics in the thrust areas of research. During the year under report one student was selected in NET-JRF and 1 student in NET Lecturership.

Faculty :
Professors : S.S. Khare, D.Phil. (Alld.) (on deputation as PVC-Tura)
M.B. Rege, Ph.D. (Bombay)
S.K. Srivastava, Ph.D. (Gorak)
H.K. Mukerjee, D.Phil. (Alld.)
Readers : P.K. Saikia, Ph.D. (Wisconsin)
C.R. Mondal, Ph.D. (V.B.)
A.K. Das, Ph.D. (NEHU)
M. Ansari, Ph.D. (Gorak)
K.K. Singh, Ph.D. (Gorak)
B.S. Koikara, Ph.D. (NEHU) (resigned)
Lecturers : A.M. Buhphang, Ph.D. (NEHU)
A.T. Singh, M.Phil. (NEHU)
Sanghita Dutta, Ph.D. (NEHU)
Jonali Choudhury, M.Sc. (Gau) (resigned)

Visiting Professors/Fellow/Scholars : Prof. S.G. Dani, TIFR, Mumbai, Prof. D.V. Pai, IIT, Mumbai, Dr. Anupam Saikia, IIT Guwahati, Prof. A.B. Raha, ISI Kolkata, Kolkata, Dr. N. Deka Barua, Tezpur University, Assam, Dr. P. Jothilingam, Pondicherry, Dr. B.K. Sharma, IIT Guwahati, Dr. Ravindra Shukla, University of Allahabad, Allahabad, Dr. Arindam Sen Gupta, Calcutta University, Kolkata and Dr. S.K. Majumdar, ISI Kolkata, Kolkata visited the Department and interacted with the faculty members and students.

Student intake :

Enrolment capacity : M.Sc. : 35, M. Phil. : unspecified, Ph.D. : unspecified

Actual Admission:	SC	ST	Gen	Male	Female	Meghalaya	Outside Meghalaya
M.Sc. :	-	31	4	21	14	27	8
M. Phil. :	0	4	7	10	3	10	3
Ph.D. :	0	1	2	3	0	1	2

Degree Awarded :

M.Sc. :	SC	ST	Genl.	Male	Female	Total
-	3	1	3	1		4

Placement of Students : Six students got teaching jobs in different colleges in Shillong.

Courses conducted :

M.Sc. 1st Semester : Elementary Number Theory, Topics in Basic Mathematical Structures, Classical Mechanics, O.D.E. and Environment

M.Sc. 2nd Semester : Analysis II, Algebra I, Topology, P.D.E.

M.Sc. 3rd Semester : Computer Programming, C.F.T., Diff. Geometry, Topics in Algebra.

M.Sc. 4th Semester : Algebraic Topology, C.N.A., Ring Theory, O.R.

Study tours/Field trips : Twenty M.Sc. Students led by Dr. M. Ansari, Reader, Department of Mathematics, went for a study tour during 25-01-2008 to 16-02-2008, to Indian Institute of Science, Bangalore, Institute of Oceanography, Goa, and TIFR, Mumbai and other places to know the various development in mathematics and its applications and also to know the various openings and direction for the future.

Seminars/Conferences :

Organized

The Department organized "Symposium on Recent Advances in Mathematics" during April, 4-5, 2007.

The Department organized regular Colloquium and Seminars in the topics: Number theory, Character theory of finite groups, Rational Homotopy theory, Mapping class groups and curve complexes, Commutative Algebra, Relativity and Cosmology.

Prof. M.B. Rege organized a pre-Indian National Mathematical Olympiad training camp for the Shillong center participants of the Indian National Mathematical Olympiad-2008 (INMO-2008) from January, 27, 2008 to February 3, 2008.

Attended

Prof. M. B. Rege Delivered an invited talk on 'Mathematical Olympiads in India' during the Annual Congress of the Assam Academy of Mathematics, on February 3, 2008 in Guwahati. He also delivered a lecture in International Mathematical Olympiad Training Camp, in HBCSE, Mumbai, in May 2007. Prof. M. B. Rege presented a paper entitled 'Armendariz rings' in the symposium organized by the Department of Mathematics, NEHU in April 2007.

Prof. S. K. Srivastava delivered an invited talk entitled "Curvature induced dark energy and cosmic acceleration" in International Conference on Gravitation and Cosmology, in 2007 held at Indian University Centre for Astronomy and Astrophysics, Pune.

Prof. H.K. (i) Mukerjee delivered an invited talk entitled "On some approach towards classification problem in topology", at the Department of Mathematics, IISc, Bangalore on August 2, 2007. (ii) delivered an invited talk entitled "On problems of classification of manifolds", at the International Workshop/Conference in Geometry and Topology, held at the Department of Mathematics, IIT, Mumbai during August 23-25, 2007. (iii) delivered an invited talk entitled "On Mapping Class Groups and Related Topics", at the Workshop in Geometry and Topology, held at the Department of Mathematics, University of Pune, Pune during January 2 -16, 2008. (iv) delivered an talk entitled "On Poincare Conjecture" in the Symposium on recent Advances in Mathematics organized by the Department of Mathematics, NEHU Shillong in April 4-5, 2007.

Prof. S.S. Khare delivered an invited talk entitled "Group Actions and G Bordism with special reference to specific manifolds" in the Symposium on recent Advances in Mathematics organized by the Department of Mathematics, NEHU Shillong in April 4-5, 2007. He also delivered an invited talk entitled "Some tips to make mathematics teaching interesting" in the Workshop on Mathematics organized by NCERT, Shillong in June 2007.

Publications :

Mondal C. R. 2007. Long Waves in a rotating Ocean due to oscillatory disturbances. *J. Indian Acad. Math.*, 29: 37-49.

Rege M. B., Buhphang A. M. 2008. On reduced modules and rings. *Int. Electronic J. Algebra*, 3: 58-74.

Srivastava S. K. 2007. Non-violation of energy condition in the future accelerated universe. *IJTP*. 46: 1702-1709.

Fund received from agencies other than NEHU :

DST – FIST : Rs 36.5 lakhs

DAE – NBHM : Rs. 6.0 lakhs

Infrastructure facilities : One Computer Laboratory for M. Sc. Students has been set up.

Research Projects :

New : Classification problems in higher and lower dimensional topology. Principal Investigator: Prof. H. K. Mukerjee. Sponsored by DAE – NBHM, Mumbai

Other Activities : The Department has organized a Refresher Course in Mathematics for college teachers from 24th October, to 15th November, 2007, with Dr. P.K. Saikia, Reader, Dept. of Mathematics, NEHU, Shillong, as the Course coordinator. Dr. K.K. Singh delivered four lectures on "Non-linear dynamical systems" during the Refresher course at Department of Mathematics, North-Eastern Hill University, Shillong from 24th October to 15th November, 2007. Dr. K.K. Singh attended and actively participated in the symposium on "Some recent advances in Mathematics" organized by the Department of Mathematics, NEHU, Shillong on 4-5 April, 2007. Mr. A. Tiken Singh attended the Workshop in Algebraic Topology in IMSc, Chennai, from 4-9 June, 2007. Mr. A. Tiken Singh attended and actively participated in the Refresher Course in Mathematics for college teachers from 24th October, to 15th November, 2007. Dr. S. Dutta attended and participated in the Refresher Course in Mathematics for college teachers from 24th October, to 15th November, 2007. Dr. M. Ansari attended and participated in the Refresher Course in Mathematics for college teachers from 24th October, to 15th November, 2007. Dr. M. Ansari attended a National Seminar on "Population Environment and Sustainable Development in India with special Reference to North-East" organized by The Centre for Adult and Continuing education

NEHU, Shillong on 11th and 12th July 2007. Dr. M. Ansari attended a seminar on "North East School on Computational Geometry" held at St. Anthony's college, Shillong from November 1-3, 2007, jointly organized by Advanced Computing & Microelectronic Unit, Indian Statistical Institute, Kolkata & Department of Computer Science, St. Anthony's College, Shillong.

DEPARTMENT OF PHYSICS

Head : Professor P. Nongkynrih
Telephone : 2722801 (O), 2722831 (O), 2225434 (R)
E-Mail : phlism@yahoo.com; phlism@nehu.ac.in

Thrust Areas of Research : Solid State Physics, High Energy Physics, Laser Physics, and Nuclear Physics.

Brief Statement of Academic Activities : The main academic activity of the Department has been teaching M.Sc. (Physics) courses. In addition to teaching, members of the faculty have been engaged in guiding research for Ph.D. scholars as well as carrying out their research projects. The faculty members have been invited by reputed national and international institutions for research collaborations and giving talks on their research contributions. The Department organized a National Workshop on "Trace Elements Research" in collaboration with the UGC-DAE Consortium for Scientific Research, Kolkata Centre during 4-6 March, 2008.

Faculty :

Professors : P. Shukla, M.Sc. (IIT, Delhi), Ph.D. (Temple)
 Y. S. Jain, M.Sc. (Agra), Ph.D. (IIT Kanpur)
 P. N. Pandita, M.Sc, Ph.D.(Kashmir)
 D. T. Khathing M.Sc. (Delhi), D. Phil (Kolkata)*
 B. M. Jyrwa, M.Sc., Ph.D. (NEHU)
 P. Nongkynrih, M.Sc., Ph.D. (NEHU)
 S. Kumar, M.Sc. (BHU), Ph.D. (Utkal)
Readers : M. C. Mahato, M.Sc.(Ranchi), Ph.D.(IISc, Bangalore)
 S. S. Khatri, M.Sc.,Ph.D. (NEHU)
 Y. N. Tiwari, M.Sc.,Ph.D. (Patna), LL.B.(Patna)
Lecturers : S. S. Pohlong, M.Sc.,Ph.D.(NEHU)
 A. Saxena, M.Sc.(Rohil), M.Phil.(Meerut), Ph.D.(NEHU)

*On deputation as Registrar, NEHU, Shillong.

Visiting Professors/Fellows/Scholars in the Department :

- (i) Prof. S.S. Manna, S.N. Bose National Centre for Basic Sciences, Kolkata visited the Department under Theoretical Physics Seminar Circuit programme and gave a lecture on the topic "The International

- Trade Networks: weighted network analysis and modeling” on 23rd April, 2007.
- (ii) Prof. A.M. Jayannavar, Institute of Physics, Bhubaneswar gave a series of two talks on “Fluctuation theorems: Charge particle in magnetic field” on 8th and 9th October, 2007.
- (iii) Prof. H.L. Das, Gauhati University gave a lecture on “Some new insight to the nature of metallic bond” on 26th November, 2007

Student intake :

Enrolment capacity : 30

Actual Admission : SC ST Gen Male Female Meghalaya Outside Meghalaya

M.Sc. - 28 2 19 11 29 1

Ph.D - 2 8 7 3 7 3

Degrees Awarded: SC ST Gen Male Female Total

M.Sc. 1 23 5 21 8 29

Placement of Students : The majority of students after completing M. Sc. or Ph.D. have obtained teaching jobs in colleges and schools of Meghalaya. Some have joined research and post doctoral research.

Courses Conducted :

Semester I - Classical Mechanics, Quantum Mechanics I, Mathematical Physics, Laboratory I.

Semester II-Electrodynamics, Electronics, Quantum Mechanics II, Laboratory II

Semester III-Nuclear Physics, Solid State Physics, Atomic and Molecular Physics, Laboratory III, Environment

Semester IV-Thermal Physics, Computational Techniques and Numerical Methods, Computational Techniques-Laboratory, Optional papers on Advanced Solid State Physics, High Energy Physics, Laser Physics, and Nuclear Physics.

Study tours/Field Trips : The students of the Department under the guidance of Dr. A. Saxena went on Study Tour from 31st December, 2007 to 18th January, 2008. They visited ISRO, Hindustan Aeronautical Museum Bangalore, BARC and Jawaharlal Nehru Science Centre, Mumbai.

Seminars/Conferences/Symposia/Workshops/Extension Programmes:

Organised

The Department organized the National Workshop on “Trace Elements Research” in collaboration with UGC-DAE Consortium for Scientific Research, Kolkata Centre during 4-6 March, 2008.

Attended

Prof. P. Shukla presented a paper on (i) "Dynamics of K-core percolation" in the International Workshop and Conference on Statistical Physics Approaches to Multi-disciplinary Problems, held at IIT Guwahati during Jan 7-13, 2008 and also chaired one of its sessions, (ii) chaired a session in the National Workshop on "Trace Elements Research" held during 4-6 March, 2008 organized by the Department in collaboration with UGC-DAE Consortium for Scientific Research, Kolkata Centre.

Prof. Y.S. Jain chaired a session in the National Workshop on "Trace Elements Research" held during 4-6 March, 2008 organized by the Department in collaboration with UGC-DAE Consortium for Scientific Research, Kolkata Centre.

Prof. D.T. Khathing gave an invited talk on the Fifteenth National Symposium on Environment (NSE-15), during June 5-7, 2007 at the Bharathiar University, Coimbatore.

Dr. S.S. Pohlong and Dr. M.C. Mahato presented a paper on "Jump-length Distribution in an Underdamped Periodic System" in the International Workshop and Conference on Statistical Physics Approaches to Multidisciplinary Problems held from 7-13 Jan., 2008 at IIT, Guwahati.

Dr. M.C. Mahato gave an invited talk on "Motional dispersions and ratchet effect in inertial systems" in the International Workshop and Conference on Statistical Physics Approaches to Multidisciplinary Problems held during 7-13 Jan. 2008 at IIT, Guwahati.

Dr. Y.N. Tiwari presented a paper on "Hydrogen-hydrogen collisions including exchange" in the National Conference on Atomic and Molecular Physics held on 4th Jan., 2008 at Sardar Patel University, Vallabh Vidyanagar.

Dr. A. Saxena presented papers on "Preliminary investigation of Radon in North-eastern Indian region" and "Radon level in dwellings and associated soil in and around Shillong agglomeration" in the XVth National Symposium on SSNTD's and their applications" at H. N. B. Garhwal University, Srinagar, during 21-23 June, 2007.

Dr. A. Saxena (with Walia D.) presented a paper on "Radon and active Tectonics" in the Radon - 2008 Theme meeting at BARC, Mumbai during 11-13 March, 2008.

In the National Workshop on "Trace Elements Research" NEHU, Shillong held during 4-6 March, 2008, the following papers were presented by the members of the faculty of the department:

Dr. A. Saxena (with Walia D., Sanabam S. S. and Dkhar P. S.), "Trace Elements Analysis of Soils along the Darrange-Dawki profile, North Eastern India".

Dr. A. Saxena (with Walia D., and Kumar A.), "Physicochemical characteristics of hot spring water from Jakrem and Spring water from Umshing East Khasi Hills".

Dr. A. Saxena (with Walia D.), "Assessment of environmental radon concentration of Shillong city".

Prof. Nongkynrih and Prof. D. T. Khathing (with Iongwai I. S., Kharbuli B., War S. A., Jha S. K. and Tripathi R. M.), "Comparative study of seasonal

variation of Mn and Cu in Garra lamta from selected rivers of West Khasi Hills District, Meghalaya, India".

Prof. Nongkynrih and Prof. D. T. Khathing (with War S. A., longwai P. S., Jha S. K. and Tripathi R. M.), "Concentration of Ca, Mg, Fe and Zn in Surface Water Samples of Sohra (Cherrapunjee), East Khasi Hills District Meghalaya, India."

Prof. Nongkynrih and Prof. D. T. Khathing (with Marbaniang D. G., Poddar R. K., Jha S. K. and Tripathi R. M.), "Dietary Intake and Transfer Coefficient study of some selected trace elements from different food items, from, in and around Domiasiat area, Meghalaya".

Publications :

Farrow C. L., Shukla P., Duxbury P. M. 2007. "Dynamics of k-core percolation" *J. Phys. A: Mathematical Theoretical* 40: 581-587.

Book /Book Chapter/Proceedings Publications

longwai P. S., Kharbuli B., Khathing D. T., Marbaniang D. G., Myrthong S., Rabha A., and Rabha K., 2007 "Study on the seasonal variation of major Trace Elements in Garra lamta(Hamilton) from Kynshi River of West Khasi Hills, Meghalaya". Proceedings of DAE-BRNS National Symposium on Limnology, Udaipur, pp. 138-139.

longwai P. S., Kharbuli B., Khathing D. T., Marbaniang D. G., War S. A., Jha S.K., 2007 "Evaluation of Trace Elemental (Cu,Mn,Ni,Cr and Co) variability in Neolissocheilus hexagonelepis from Kynshi River of West Khasi Hills, Meghalaya, India. Proceedings of Fifteen National Symposium on Environment, Coimbatore, pp. 276-280.

Khathing D. T., Myrboh B., Nongkynrih P., War S. A., Marbaniang and longwai P.S. Baseline Environmental Survey of Proposed Uranium Mining Projects of Domiasiat, Meghalaya. Proceedings of Fourteenth National Symposium on Environment. Environmental Geochemistry. 8: 96-103.

Marbaniang D. G., Poddar R. K., Nongkynrih P., Khathing D. T., longwai P. S. and Myrthong S., 2007. Intake of Trace and Major elements through Drinking Water pathway by the Adult Population of the six villages around the Uranium deposit site of Domiasiat, West Khasi Hills, Meghalaya. Proceedings of DAE-BRNS National Symposium on Limnology, Udaipur, pp. 340-344.

War S. A., Nongkynrih P., Khathing D. T., longwai P. S. and Myrthong S., 2007. Study of Natural Radioactivity Levels of Soils in and around East Khasi Hills District, Meghalaya. Proceedings of Fifteen National Symposium on Environment, Coimbatore, pp. 393-397.

Marbaniang D. G., Poddar R. K., Nongkynrih P., Khathing D. T., War S. A., longwai P. S. and Jha S. K., 2007. Effect of Geo-Chemical Variation on the Background Radiation Level in Khasi Hills District of Meghalaya.

Proceedings of Fifteen National Symposium on Environment, Coimbatore, pp. 286-292.

Walia, D., Sanabam, S. S., Lyngdoh, A. C., Saxena, A. and Syiem, S. M., 2008 "Identifying the Active Fault Zones in the Shillong Plateau Using Geophysical Data", In: S. Singh, L. Starkel, H. J. Syiemlieh, (Eds) Environmental Changes and Geomorphic Hazards, eds Published by Bookwell, New Delhi. Pp. 177-192.

Funds received from Agencies other than NEHU :

i.	DST, Govt. of India, Delhi	Rs.1,50,000
ii.	BRNS, DAE, Govt. of India	Rs.7,70,000
iii.	BRNS, DAE, Govt. of India	Rs.1,94,406

Research Project:

Ongoing

- (i) Investigation of electrical conductivity of doped silver halides (Principal Investigator: Prof. Y.S. Jain; Co-investigators: Dr. M.C. Mahato and Dr. S.S. Pohlong) funded by DST Govt. of India, Delhi.
- (ii) Study of particle motion in noisy environment (Principal Investigator: Dr. M.C. Mahato) funded by BRNS, DAE, Govt. of India, Mumbai.

New

- (i) Radon Monitoring in Groundwater of the Northeastern India region to study the neotectonic activities and health hazard (Principal Investigator: Dr. A. Saxena) funded by BRNS, DAE, Govt. of India, Mumbai.
- (ii) Structural Mapping of the area around South of Tailing pond site, Domiasiat (Co-investigator: Dr. A. Saxena).
- (iii) Hydrogeological studies of the proposed uranium mining tailings dam site at Domiasiat (Co-investigator: Dr. A. Saxena).
- (iv) Documentary film on Baseline Survey of Domiasiat and Adjacent Areas, West Khasi Hills, Meghalaya (Principal Investigator: Prof. D.T. Khathing).

Completed

"Baseline Environmental Survey of Domiasiat and its Adjacent Areas, Meghalaya" (Principal Investigator: Prof. D. T. Khathing, Co-investigator : Prof. P. Nongkynrih)

Academic/Professional Collaboration :

Prof. P. Shukla has initiated research collaboration on the modelling of magnetic materials with Prof. P.M. Duxbury and his research group at the Department of Physics and Astronomy, Michigan State University, USA.

He is also engaged in research collaboration with Prof. T.J. Sluckin of the School of Mathematics, University of Southampton, U.K., on random field methods in physics and biology. The research is supported by a grant from the Royal Society of London.

Prof. S. Kumar has research collaboration with (i) Dr. P.K. Patra of Centre for Science Education, NEHU, Shillong and (ii) Dr. L. J. Singh of

Department of Electronics and Communication Engineering, NEHU, Shillong on the mechanical properties of multiwalled carbon nanotubes.

Prof. P. Nongkynrih has collaborative research with Dr. V. D. Puranik, Head and other Scientists of EAD, BARC, Trombay related to radiological impact assessment at Uranium Mining sites in Meghalaya.

Dr. M.C. Mahato has collaborative research with Prof. A. M. Jayannavar, Institute of Physics, Bhubaneswar as the Principal Collaborator in the research project "Study of particle motion in noisy environment".

Dr. A. Saxena has collaborative research with (i) Dr. D. Walia, CES, NEHU, Shillong, (ii) Dr. B. K. Sahoo, Dr. Y. S. Mayya, EAD, BARC, Dr. P. K. Wattal, and Dr. A. Acharya, BETDD, BARC, Mumbai.

Other activities :

Prof. P. Shukla was invited to visit the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, during the period Jan. 17 to Feb. 18, 2008. He also gave a seminar at ICTP on "Dynamics of k-core percolation".

Dr. A. Saxena attended a refresher course in Chemistry conducted by Chemistry Department, NEHU, Shillong from 20th September to 12th October, 2007.

Prof. P. Shukla served on the Board of Advisors for the International Workshop and Conference on Statistical Physics : Approaches to Multi-disciplinary Problems, held at IIT, Guwahati during Jan 7-13, 2008.

DEPARTMENT OF STATISTICS

Head : Professor G. Das

Telephone : 2722901 (O), 2722902(O), 2550114 (R)

E-mail : gitasree@sancharnet.in

Thrust Areas of Research : Statistical Inference, Design of Experiments, Sample Survey and Statistical Ecology.

Brief Statement of Academic Activities : The Department is involved in the following activities:(i) Teaching M.Sc. Course in Statistics (ii) Teaching Biometrics for M.Sc. Students of Zoology (iii) Research guidance to Ph.D. students and (iv) Research activity of the individual faculty members.

Faculty :

Professor : G. Das, M. A. (Delhi), Ph. D. (NEHU)

Readers : M. K. Das, M. Sc., Ph. D. (Dibrugarh)

T.K. Chakrabarty, M. Sc.(Agra), Ph.D. (Mani)

Lecturers : B. K. Gupt, M.A. (Rohilkand) M. Sc. (A.M.U), Ph. D. (Gau.)

S. K. Jha, M. Sc., Ph. D. (Patna)

R. Singh, M. Sc., Ph.D. (Patna)

Student intake :

Enrolment capacity: 10

Actual Admission : SC ST Gen Male Female Meghalaya Outside Meghalaya

M. Sc. - 8 2 7 3 2 8

Degrees Awarded :

Actual Admission SC ST Gen Male Female Total

M. Sc. - 5 - 4 1 5

Placement of students :

One student working as part time Lecturer in Shillong College

One student working as Project Fellow in DAE-BARC project

Three students have applied for Ph.D. programme in the Department

Courses Conducted :

Semester I - Ancillary Mathematics, Measure Theory and Probability, Distribution Theory, Matrix Algebra and Numerical Analysis (Pract), Distribution Theory (Pract), Computer Programming (Pract).

Semester II - Inference – I, Sample Surveys, Linear Models and Regression Analysis, Inference – I (Pract), Sample Surveys (Pract), Linear Models and Regression Analysis (Pract).

Semester III - Inference – II, Design of Experiments, Time Series Analysis, Inference – II (Pract), Design of Experiments (Pract), Time Series Analysis (Pract).

Semester IV - Multivariate Analysis, Econometrics and Economic Statistics, Environmental Statistics : Optional Paper : Operations Research, Multivariate Analysis (Pract), Econometrics and Economic Statistics (Pract), Operations Research (Pract)

The department also conducts Biometrics course for M.Sc. IVth Semester students of Zoology.

Seminar/Conferences/Symposia/Workshop/Extension Programmes etc.:**Attended**

Prof. G. Das delivered an Invited talk on Nonlinear Statistical model for characterizing culm growth of bamboos, in the symposium, "Statistical Aspects of Research in Agricultural and Environmental Sciences: Status and Scope", held on 01 December, 2007, during 61st Annual Conference of Indian Society of Agricultural Statistics at Birsa Agricultural University, Ranchi, from 30 November to 02 December, 2007.

Dr. T.K. Chakrabarty presented a paper on Kernel Estimation of Hazard and Density Functions from Retrospective Report on Age at Weaning in the conference organized by the XXIX Annual Conference of India Association for the study of Population and National Seminar on Recent Statistical Techniques for Data Analysis from 26 – 28 October, 2007 at the Department of Statistics, Banaras Hindu University, Varanasi – 221005

Publications :

Das M. K. and Dey S. 2007. A note of Prediction interval for a Rayleigh Distribution: Bayesian Approach. *American Journal of Mathematical and Management Science*, 1&2: 43 – 48.

Das M. K. and Dey S. 2007. Bayesian Estimation of Parameters of a 1 – out – of – 2G Repairable system under different priors and different loss functions. *Interstat # 4*, U.S.A (on-line).

Das G. and Handique B. K. 2007. Prioritization of timber species richness hotspots for optimal harvesting and conservation planning – a spatial statistics approach. *Journal of Geomatics*, 1: 31-36.

Das G., Nath A. J., Das A. K. 2007. Culm characteristics and population structure of dolu bamboo (*Schizostachyum dullooa* (Gamble) Majumder) in Barak Valley, Northeast India, the need for conservation and implications for management, *Bamboo Science & Culture. The Journal of American Bamboo Society*, 20: 15-20.

Research Projects :**New**

Comparative study on some selected forest sampling techniques with satellite remote sensing inputs. Project Investigator: Prof. G. Das. Sponsored by Department of Space, Government of India under EOAM in collaboration with NESAC, Shillong. (Total fund: Rs. 5,62,500/-).

Other Activities : Dr. M. K. Das delivered Lectures in the Workshop on 'Statistical Methods' Jointly organized by CSSC, Indian Statistical Institute, Kolkata and Department of Statistics, NEHU during 27th November to 1st December, 2007 at the Department of Statistics, NEHU, Shillong.

Dr. T. K. Chakrabarty acted as a Regional Coordinator for the Workshop on 'Introductory Statistical Analysis of Biological Data' held from 27th November to 1st December, 2007 at the Department of Statistics, NEHU, Shillong. Dr. T. K. Chakrabarty delivered Lectures in the Workshop on 'Introductory Statistical Analysis of Biological Data' jointly organized by CSSC, Indian Statistical Institute, Kolkata and Department of Statistics, NEHU during 27th November to 1st December, 2007 at the Department of Statistics, NEHU, Shillong. Dr. T. K. Chakrabarty delivered Lectures and supervised the hands – on Training sessions on the 'Training Programme on SPSS' on 29th March, 2008 at the Department of Geography NEHU, Shillong. Dr. T. K. Chakrabarty participated in a Workshop/Winter School organized by the ISI – MU Winter School on 'Data Mining and Computational Biology' on the 28th January to 1st February, 2008, at the Department of Computer Science, Manipur University.

Dr. S. K. Jha delivered a Lecture on 28.11.2007 as a Subject – Expert in Special Course on 'Risk based Audit Approach with Quantitative Techniques

and Statistical Sampling for SOs and Sr. AOs (Audit)' Organised by the Regional Training Institute (Indian Audit & Accounts Department), Shillong from 26.11.2007 to 29.11.2007. Dr. S. K. Jha delivered a Lecture on 29th March, 2008, as a Subject – Expert in 'Training Programme on SPSS' organised by the Department of Geography, NEHU, Shillong.

Prof. G. Das delivered two lectures with hands-on computer session during Workshop on 'Introductory Statistical Analysis of Biological Data', jointly organized by Indian Statistical Institute, Kolkata and Department of Statistics, NEHU, Shillong, during November 27 to December 01, 2007.

CENTRE FOR SCIENCE EDUCATION

Head : Dr. Debashis Bhattacharjee
Telephone : 2722950 (O), 2223296 (R), 9436309613 (M)
Email : debashis_bhattacharjee@yahoo.com

Thrust Areas of Research in the Centre : Theoretical Physics, Pure Mathematics (Number Theory) and Science Education.

Brief Statement of Academic Activities : Offered Remedial Teaching Programme in Mathematics, Physics, Chemistry and Biology to Tribal students of Class XI& XII. Offered Remedial Coaching in Mathematics, Physics, Chemistry and Biology to students of SC/ST and Minority Communities of class XI

Faculty :
Professor : M. M. Singh, Ph. D. (Kuruk)
Readers : D. Bhattacharjee, M. Sc. (NEHU), Ph. D. (Warsaw)
P. K. Patra, M. Sc. (Sambalpur), Ph. D. (NEHU)
A. Chattopadhyay, M. Sc. (Calcutta), Ph. D. (NEHU)
(on lien to Vishwa Bharati University)

Student Intake :

No. of students in Remedial Teaching Programme for Class XI- 17
No. of students in Remedial Teaching Programme for Class XII- 05

Courses conducted :

Remedial courses in science

Seminars/ Conference/ Symposia/ Extension programmes etc.:

Organized

Centre organized a Workshop on "Scientific Computing" from March 12 – 14 2008 for College Teachers/ Researchers working in various disciplines of Physical Sciences.

Attended

Dr. D. Bhattacharjee presented a research paper titled "On Some New Arithmetical Convolutions" at the 2007 International Conference on High Performance Computing, Networking and Communication Systems during July 9 – 12, 2007 in Orlando, FL, USA.

Publications :**Book/Book Chapter/Proceedings Publications**

Bhattacharjee D. 2007. On Some New Arithmetical Convolutions. Proceedings of the 2007 International Conference on High Performance Computing, Networking and Communication Systems, Orlando, FL, USA., pp 26-30.

Fund Received from Agencies other than NEHU :

UGC, New Delhi : Rs. 5.6 Lakhs.

Infra structure Facilities : Procured 6 Computers, 1 Photocopier, 1 Fax Machine, 1 Aquaguard and Books worth Rs. 55, 068/-.

Academic/Professional Collaborations : Dr. D. Bhattacharjee has research collaboration with Dr. Bhanu Prasad, Department of Computer and Information Sciences at Florida A & M University, Tallahassee, FL, USA.

Other Activities : Dr. D. Bhattacharjee participated in the Symposium on "Some Recent Advances in Mathematics" organized by the Department of Mathematics, NEHU, Shillong during 4-5 April, 2007.