

**BIO DATA**

*Of*

**Prof. Dr. Samir Kumar Saha**

*Mechanical Engineering Department  
Jadavpur University*

## Bio Data

- Name in full** ( in block letters ) : **PROFESSOR SAMIR KUMAR SAHA**
- Father`s name** : Late Shri M.N.Saha
- Present Postal Address** ( block letters) : HEAT POWER LABORATORY  
MECHANICAL ENGINEERING DEPARTMENT  
JADAVPUR UNIVERSITY, KOLKATA – 700032  
  
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E-mail : sahasamir7@yahoo.com , sahasamir7@gmail.com  
  
Residence : FLAT 4E,  
17, NORTH ROAD, JADAVPUR, KOLKATA -32
- Nationality** : Indian
- Date of Birth** : 7<sup>th</sup> August, 1948 (07.08.1948)

- Educational Qualifications** ( from Matriculation onwards) with Percentage of marks & the Board / University from where passed in tabular form along with attested copies of the testimonials

Examination	Field	University / Board	Year	Class / Div.	Percentage
Higher Secondary	Science	W. B. Board of Higher Secondary Education	1963	I (16 <sup>th</sup> )	77%
B.M.E.	Mechanical Engineering	Jadavpur University, Kolkata – 700032	1968	I	68%
M.M.E.	Heat Power	- do -	1971	I	75%
Ph.D. (Engg.)	Mechanical Engineering	- do -	1982		

- Field of Specialization:** Heat Power Engineering with emphasis on THERMODYNAMICS, HEAT TRANSFER, ENERGY CONVERSION & SOLAR THERMAL, THEORY & APPLICATIONS.

**8. List of all previous employment in order** ( Most recent first together with details of Duties and salary drawn) / Experience

**(a) Teaching Experience :**

	Position held	Name of Organisation	Period	Details of Duties	Salary
1.	Professor, Mechanical Engg. Department,	Jadavpur University	7.8.90 – till date	Teaching, Research & Guidance	Scale 16,400/- - 22,400/- Present basic 22,400/-
2.	Director	Academic Staff College , Jadavpur University	2 years 12.08.02 – 21.07.04 (on lien from the post of Professor)	Conducting teachers training programmes, designing courses, liazo with UGC, handling approx. 1200 teachers per year	
3.	Reader, Mechanical Engg. Department,	- do -	(1984 – 1990) 6 years	Teaching, Research & Guidance	
4.	Lecturer, Mechanical Engg. Department,	- do -	(1973 – 1984) 11 years	Teaching, Research & Guidance	

**(b) Other Related Experience:**

	Position held	Name of Organization	Period
1	Sr. Research Fellow Mech. Engg. Dept., J.U.	Jadavpur University Kolkata – 700032	1 Year
2.	G.O.I. Trainee Mech. Engg. Workshop, J.U. (July'68 – June'69)	- do -	1 Year

**9. Courses taught**

**Undergraduate**

- i) Thermodynamics
- ii) Energy Conversion Methods
- iii) Heat Engineering
- iv) Solar energy
- v) Mechanical Engineering Laboratory (Heat Power)
- vi) Project & Design on Solar Energy
- vii) Project & Design on Steam Power Plant

- viii) Colloquium
- ix) Refrigeration and Air Conditioning
- x) Basic Engineering Drawing
- xi) Workshop practice - I

### **Post Graduate**

- i) Heat & Mass Transfer
- ii) Advance Thermodynamics
- iii) Solar Thermal Conversion – I
- iv) Solar Thermal Conversion – II
- v) Energy Conservation & Management
- vi) PG seminar(Mechanical, School of Nuclear Studies)
- vii) Solar Energy Engineering

### **10. Laboratory Development Activities:**

- Have been actively involved for 25 years in the planning, design and Development of –
  - i) Solar Energy Laboratory
  - ii) Heat Transfer Laboratory
  - iii) Refrigeration & Air-Conditioning Laboratory
  - iv) Steam Generation Laboratories of the Mechanical Engg. Dept. Test set up on Solar Thermal Devices (at the School of Energy Studies for Project Regional Test Centre of Ministry of Non Conventional Energy Sources, Govt. of India.
- Have installed and commissioned equipment, designed experiments and prepared data sheets for over 20 years.
- Been In-Charge of Heat Power Laboratory, Mech. Engg. Deptt. From July, 1988 to June, 1992 for 4 years. The Labory houses boilers, turbines, I.C. Engines, Refrigeration & A/c & Heat Transfer related set ups.

### **11. Institutional and Department Development Activities:**

- a) Teaching Undergraduate and P.G. Courses in Thermodynamics, Heat and Mass Transfer, Solar Thermal Systems, Design of Thermal Power Plants.
- b) Conducting Laboratory classes on various thermal devices and assessment thereof.
- c) Course development, specially in the areas of Basic Thermal Sciences, Solar Energy Engineering, Techniques of Technical presentation, Energy Conservation & Management, Steam Power Plant Engineering.
- d) Design and development of laboratory facilities, have been actively involved in the planning and development of –

(a) Solar Energy; (b) Heat Transfer; (c) Refrigeration and Air Conditioning Laboratories in the Department of Mechanical Engineering; Solar Thermal Laboratory at the School of Energy Studies.

- e) As a member of the Curricular Committee of the Department have participated in the structuring of the undergraduate course and P.G. courses of the M.E. Dept. for several years. Presently engaged in the exercise of revising UG & PG course curriculum in the Mechanical Engg. Dept.
- f) As Convener-member of the Joint Teaching-student Committee of the Department for 10 years, have actively participated in various reformations of departmental academic matter (1980-1990).
- g) Development of the M.E. Departmental Library in reference cataloging of books and journals, as Member of the Departmental Library Committee since 1978-1990. Presently, member of Department Library Committee since 1995.
- h) Participated in various co-curricular activities as executive members/treasurers of various in campus student organizations such as Science Club, Film Society, Debating Society, Student Canteen etc. for about 20 years.
- i) Member of the Editorial Board of in-campus science Journal, "Bijnan", Science Technology Journal "Break Through" and "University News Letters".

**12. Membership in Scientific and Professional Societies :**

1. Life Member, Solar Energy Society of India.
2. Chartered Engineers, India.
3. Member, National Council of Education, W.B., Kolkata – 700032.
4. Vice-President, Solar Energy Society of India, Eastern Regional Chapter.
5. Fellow, Association of Engineers, India.
6. Executive Committee Member, National Council of Education, W.B.
7. Fellow, Institution of Engineers, India.
8. Member, Indian Sciences Congress Association.
9. Life Member, Association of voluntary Blood Donors, W.B.
10. Life Member, Indian Association for the Cultivation of Science.
11. Vice-President, Eastern Regional Chapter, Solar Energy Society of India.
12. Life Member, Indian Society of Heat & Mass Transfer.
13. Executive Member, Indian Society of Heat & Mass Transfer.

**13. No. of Projects completed / ongoing as Principal Investigator / Investigator /Coordinator.**

Sl No.	Name of the funding agency (AICTE/others)	Name of the Scheme	Project Title	Year of funding	Duration	Amount Sanctioned	Status Completed /Ongoing
1	Ministry of Human Resource Development, Govt. of India	Modernization	Modernisation of Laboratories Mech. Engg. Dept. Jadavpur University (Co-ordinator)	1990	4 yrs.	20 lakhs	Completed
2	West Bengal Renewable Energy Development Agency	Research	Study on Performance of Solar Cookers in and around Kolkata	1997	4 months	25,000/-	Completed

3	Ministry of non Conventional Energy Sources, Govt. of India		Regional Test Centre Cum Technology Back up Centre for Solar Thermal Devices at School of Energy Studies, Jadavpur University(Coordinator)	1993	Running Since 1993	Total over Rs.20 lakhs	Completed in January, 2003
4	Dept. of Science & Technology, Govt. of India	FIST	FIST – 1 <sup>st</sup> Phase (Co-ordinator)	2000 – 2001	1 <sup>st</sup> Phase completed	Rs.26 lakhs	Completed
5	Board of Research in Nuclear Sciences (BRNS & DAE)	Research	Experimental Facility for validation of critical leak rate models & thermal fatigue monitoring system	2000	2000 - 2005	74.15 Lakhs	Completed
6.	Board of Research in Nuclear Sciences (BRNS & DAE)	Research	Measurement of Critical Leak flow rates through slit using leak flow measurement facility at JU & c\Code validation	2006	2006 - 2007	14.17 Lakhs	Completed
7.	Board of Research in Nuclear Sciences (BRNS & DAE)	Research	Measurement of Critical Leak Flow through slit using Leak Flow Measurement – Further Measurements”	2007	2007 - 2008	13.12 Lakhs	Completed
8	Indian National Science Academy	Research	History of Technical Education in India:1900-2005	2008	3 years.	3.0 Lakhs	On Going
9	DST	Research	Assessment of Science & Technology and Research & Development in Indian Higher Education	Submitted in September, 2009 and Is under review			

#### 14. Consultancy Activities :

Have been associated with the following Industrial Projects as Adviser:

- i) Design and installation of a detergent slurry small scale sector.
- ii) Study of ARC Welding equipment – Indian Oxygen Limited.
- iii) Improvement of Energy Efficiency of tin plate Printing Ovens – Metal Box.
- iv) Analysis of Heat Transfer in Spreader STOKER Fired Boiled Furnaces – ISGEC John Thompson Ltd.
- v) Calibration of Pyrometer – Bengal Lamp.
- vi) Design of Cooling Towers – EMC Stealal.
- vii) Design of process Heat Exchanger – Business Forms Limited.
- viii) On Hermetic Compressor repairing – Kirloskar Hermetics.
- ix) Testing Thermal Conductivity of Fire resistance installation for cable – NTPC, Farakka.
- x) Testing of a Solar Hot Water System – Didas & Co.
- xi) Report on Repairing and Modernisation Boilers – Palta Mechanised Brick Factory, Govt. of West Bengal.

- xii) Cooling by Spray Water – Spawks Ltd.
- xiii) Central Airconditioning Plant Selection – Indian Institute of Chemical Biology.
- xiv) Feasibility of Boiler Feed Water heating by Solar Energy – Ranaghat Textile Mills.

**15. Short terms Courses / Conferences / Workshops attended :**

- 1) Completed a Six-week computer course on "Fortran Programming" organized by Regional Computer Centre, Calcutta (April, 1978).
- 2) Completed a Three-week course on "Computer Packages for Optimisation" organized by Regional Computer Centre, Calcutta (July, 1979).
- 3) Attended the eastern regional workshop on "National Colordination of Testing and Calibration Facilities" organized by Department of Science and Technology, Gol at the Institution of Engineers on 28<sup>th</sup> November, 1985.
- 4) Attended "Advance Study Institute of Heat Transfer Equipment Design" at National Chemical Laboratory, Pune, a course organized by Tata Research Development and Design Centre and sponsored by National Science Foundation (USA) and Department of Science and Technology (India), 16-27, June, 1986.
- 5) Attended International Seminar "Innovation in Process Energy Utilization : organized by Institution of Chemical Engineers, U.K. 16-18, September 1987, University of Bath, U.K.
- 6) Attended UNESCO-SFFI International Symposium on "Innovative Methods in Technological Education", University Paris Sud XI, 21-24, September 1987, Orsay, France.
- 7) Attended "National Solar Energy Convention" at Udaipur, India, Dec.'89.
- 8) Completed 4-week certificate course on "Personal Computer Operation" organized by Computer Sc. and Engg. Deptt. Jadavpur University, June, 1990 (sponsored by Deptt.).
- 9) Attended 2-day Seminar on Effective Petroleum Conservation in Industry and Transport Sectors, Balmer Lawrie, Nov. '90 (sponsored by University).
- 10) Attended "National Solar Energy Convention" at Calcutta, December, 1990.
- 11) Attended "Assessors Orientation Programme" (NCTCF, DST, Gol) at New Delhi, July 1990.
- 12) Attended "Meeting cum Workshop on Testing of Solar Thermal Equipment" (MNES, Gol) at New Delhi, Sept. 1992.
- 13) Attended "2-day Course on Laboratory Quality System" (DST, GOI), Calcutta Nov. '92.
- 14) Attended all India Seminar on Solar Energy in India, Inst. Of Engineers (I), Calcutta on 5-6<sup>th</sup> Feb. 1993.
- 15) Attended Indo-German Workshop on "Testing of Solar Collectors" at the Solar Energy Centre, MNES, New Delhi, 23-25 May, 1994.
- 16) Attended National Solar Energy Conference, 1996 (Dec., Calcutta).
- 17) Attended 2-day workshop on "Solar Collector Testing" at New Delhi, MNES on 18<sup>th</sup> & 19<sup>th</sup> February, 1997.
- 18) Attended 5<sup>th</sup> Indo-German Theme Meeting on 'Structural Integrity of Pressure Retaining Components' jointly organised by Jadavpur University & BARC at Jadavpur University, Kolkata, 18<sup>th</sup> February, 2009.

- 19) Panel Member, at discussion at the national seminar on “Energy security & nuclear power – an Indian perspective”, organised by NCE & Jadavpur University Alumni association in collaboration with Jadavpur University on June 20, 2009.
- 20) Attended the international workshop on Role of Experiments in Sustainability Transitions in Asia Towards a Conceptual Framework for Alternative Development Trajectory at Jadavpur University on January 14-16, 2010.
- 21) Attended the AGM of Alumni Association, NCE Bengal & Jadavpur University, Mumbai Branch on May 24, 2009.
- 22) Attended Screening Committee meeting for faculty recruitment of NIT, Durgapur on September 7, 2009.

#### 16. Other Professional Experience :

Worked for about 5 months as Part-time Technical Officer in the Institution of Engineers (India) and have wholly responsible for the publication of the Seminar Proceedings – “Planning for Industrial Growth” as the Technical Editor, 1973.

Lecturer on (a) Forecasting Techniques, (b) Cost Benefit Analysis, (c) Mathematical Programming, (d) Principles of Refrigeration, (e) Solar Flat Plate Collectors, (f) Theories of Combustion Engines at Continuing Education Courses of :

“Management concept and technique for Industry” (16.9.77 to 15.10.77) – Jadavpur University Continuing Education Centre.

“Production system analysis” (20.11.77 to 23.11.77) – Institution of Engineers (I) West Bengal, Centre.

“Operations Research” (27.5.78 to 29.5.78) – Institution of Engineers (I) Jabalpur (M.P.) Centre.

“Management concept and technique for Industry” (19.1.79 to 13.2.79) – Jadavpur University Continuing Education Centre.

“Management of Production System” (29.9.79 to 24.11.79) – Jadavpur University Continuing Education Centre.

“Computer Aided Mechanical Design” (10.12.79 to 21.12.79) – Jadavpur University Continuing Education Centre.

“Industrial Engineering and Operation Research” (5.8.80 to 20.9.80) – Jadavpur University Continuing Centre.

“Production Management” (2.1.81 to 2.2.81) – Jadavpur University Continuing Education Centre.

“Refrigeration and Air-Conditioning” (22.6.81 to 31.7.81) – Jadavpur University Continuing Education Centre.

“Solar Energy” (22.3.82 to 3.4.82) – Jadavpur University Continuing Education Centre.

“Refrigeration and Air-Conditioning” (12.7.82 to 21.8.82) – Jadavpur University Continuing Centre.

“Diesel/Petrol Engines” as Course Director (16.5.84 to 13.6.84) – Jadavpur University Continuing Education Centre.

“Refrigeration and Air Conditioning” (16.5.84 to 13.6.84) – Jadavpur University Audit and Continuing Education Centre.

“Diesel/Petrol Engines” as Course Director (14.1.85 to 11.2.85) – Jadavpur University Audit and Continuing Education Centre.

“Refrigeration and Air-Conditioning” (19.2.85 to 19.3.85) – Jadavpur University Audit & Continuing Education Centre.

“Diesel/Petrol Engines” as Course Director (16.4.86 to 19.5.86) – Jadavpur University Audit & Continuing Education Centre.



“Refrigeration and Air Conditioning” (10.3.86 to 9.4.86) – Jadavpur University Audit & Continuing Education Centre.

“16-week Workshop on Energy” by School of Energy Studies – Jadavpur University (March-June, 1986).

## 17. Invited Talks / Lectures

Delivered lecture on “Planning for Need based Engineering Education” – Seminar-cum-Workshop of W.B. Engineers” Co-operative Dederation, Calcutta, 25.2.89.

Delivered lecture on “Solar Thermal Applications” at a Workshop (State level) by Paschimbanga Vigyan Mancha, B.E. College, 5.7.89.

Delivered lecture on “ISO-9000” at 10<sup>th</sup> Re-union Mech. Engg. 21<sup>st</sup> Feb. '93.

Delivered talks on ‘Solar Thermal Energy’ at IIT, Guahati,, December, 2001

Delivered a talk on ‘History of Technical Education’ at Centre for Contemporary Studies, Indian Institute of Science, Sept, 2005

Delivered invited talks at UGC Academic staff Colleges of Guahati, Goa, Calcutta, Burdwan Universities from 2002 – 2006

Delivered invited talks at the various departments of the JU on ‘Retraining programme for teachers’ during 2005 – 2006 on

- (i) Academic reforms
- (ii) Conceptual Changes in Higher Education
- (iii) Knowledge Societies
- (iv) Renewable Energy.

One day lecture on ‘Project Management for NGO Sectors’, IIM, Kolkata, May, 2006

Delivered talk at Ramkrishna Engg. College, Coimbatore, Sept, 2006 on ‘Teaching Methodology’

Delivered Keynote speech on the occasion of ‘Urja Diwas’ at NIT, Tripura on 20.08.07.

Invited to deliver a lecture on Golden Jubilee of Mechanical Engineering Department, Assam Engineering College, Guwahati on 22<sup>nd</sup> September, 2007.

“Jadavpur University: Latest developments & future outlook”. Lecture delivered on 24<sup>th</sup> May, 2009 at NCE & Jadavpur University Alumni Association, Mumbai.

“Introduction to Clean Development Mechanism”. Lecture delivered on 24<sup>th</sup> June, 2009 in the UGC-Academic Staff College Refresher Course of Department of Power Engineering, Jadavpur University, Kolkata.

“The Dynamic Curriculum in Mechanical Engineering”. At the Seminar on Mechanical Engineering Education at Crossroads organised by Mechanical Engineering Department, Jadavpur University on 10<sup>th</sup> & 11<sup>th</sup> July, 2009, Kolkata.

“Introduction to Renewable Energy”. Lecture delivered on 17<sup>th</sup> January, 2009 at the 24th National Convention on “Energy Security through Renewable Energy Sources”, 17<sup>th</sup> -18<sup>th</sup> January, 2009, the Institution of Engineers (India), Raipur.

“Grontho o Gronthagarer Rupantar”. Lecture delivered at the Bengal Library Association on December 20, 2009.

Delivered theme address “Energy Efficiency and Energy Conservation: Key to a Green Future” in the Seminar on “Hydrocarbon Conservation & Energy Efficiency” at Oil India Limited, Duliajan, Assam on 18.01.10

“Energy Efficiency and Energy Conservation” –Lecture at Durgapur Society of Management Science (DSMS), Durgapur on 25th March ‘10

“Carbon Trading & Clean Development Mechanism” - Lecture delivered on IIF’S National Foundry Day, 16th August, 2010, in the IIF Technical Seminar at Rotary Sadan, Kolkata

“Fundamentals of Solar Radiation & Measurement Techniques” - Lecture at Summer Training on “ Solar Photovoltaic & Solar Thermal Systems” on 22nd June,2010 at BESUS

“Impending Paradigm shift in Engineering Sciences and Future challenges” - Keynote Address on 24th September, 2010 at The Institution of Engineers (India) Doha , Qatar

**18. Member of Organizing Committee of Various National and International Seminars, Symposia, Workshop etc. notable amongst which are :**

Member, Exhibition Committee, Science Congress, J.U. 1980.

Member, Publication Committee, Indian Society for Theoretical and Applied Mechanics Conference, J.U. 1982.

Member, Publication Committee, International Symposia-cum-Workshop on Bio-Engineering, M.E. Deptt., J.U., 1983.

Organising Secretary, 1<sup>st</sup> Reunion of the Mechanical Engineering, Department, Jadavpur University, 1984.

Reporteour, International Seminar at Netaji Bhavan on “Science and Technology in 7<sup>th</sup> Plan – Perspective and Approach”, January, 85.

Judge, Eastern India Science Camp., 1985, National Council of Science Museum, G.O.I. (Organised by BITM, Calcutta).

Strategy Group Member, on conservation of energy and innovative technology with particular reference to W.B. at Seminar on “Electricity for Rural Development – an action plan for West Bengal” organized by WBSEB and REC, Calcutta, 8-9, April, 1985.

Faculty Adviser, Students’ Chapter, Institution of Engineers (India) at Jadavpur University for 1-year during 1985-86.

Judge, Eastern India Science Camp, 1986, National Science Museums, G.O.I., (Organised by BITM, Calcutta).

Examiner and Paper Setter for Thermal Engineering papers at (a) Institution of Engineers (I), (B) Institute of Chemical Engineers, (c) B.S. College, Shibpur, (d) State Council of Education, W.B..

MME & Ph.D. Thesis Examiners of (i) BE College (deemed University), (ii) IIT, Kharagpur.

Project Adviser to “Jagadish Bose National Science Talent Search” (JBNSTS) Programme 1986, 1987, 1989.

Assessor, Thermal Testing, All India Panel of Department of Science and Technology, Government of India.

Expert, Interview Board, West Bengal Pollution Control Board, Calcutta – 700017.

Judge, West Bengal Science Fair, 1987, Govt. of W.B. and NCERT (Organised by BITM, Calcutta).

Panel discussor, Engineering and Applied Sciences in Bengal, Bengal Academy, Govt. of W.B., 25.2.87.

Expert Power Plant Engineering Curricular Advisory Committee, Calcutta Government Engineering College, Salt Lake under Govt. of West Bengal, since May, 1987.

Organizing Committee Member, National Seminar on Tribiology and Terotechnology, March 13-14, 1987, Mechanical Engineering Deptt., Jadavpur University.

Judge, All India Inter Engineering College Academic Meet, (Mechanical Engg. Papers), B.E. College, Shibpur, 8-10 January, 1988.

Chairman, Publication Committee, Rural-Tech. '88 organized at Jadavpur University by FOSET, SCIENCE CLUB, J.U. etc. March, 1988.

Nominated by the University as an Automobile Engg. Expert in a Committee of Rabindra Bharati University for vehicle use rationalization, April, 1988.

Nominated by the School of Energy Studies to the Tender Evaluation Committee for Solar Thermal Expansion Programme to Cottage and Small Scale Industries, West Bengal Government.

Expert and Paper Reviewer, Institution of Engineers (India).

Judge, Second Inter Engineering College Academic Meet, B.E. College, Shibpur, 7<sup>th</sup> January, 1989.

Judge, In-House Essay Competition of Science, CSIR Foundation Day, 26<sup>th</sup> Sept., 1988 at Central Glass and Ceramic Research Calcutta.

Judge, West Bengal State Science Fair, 1989, W.B. Govt. and NCERT, (organized by BITM, Calcutta)

Name included in "Directory of Expert in Renewable Energy" 1984 DST, Govt. of India, Page-32 in the field of ECONOMY ANALYSIS/ENERGY DEMAND-SUPPLY PATTERNS/SOLAR ENERGY.

ASSESSOR, THERMAL TESTING, DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST), GOVT OF INDIA, Vide letter no.16(i)/84-ET(A) dt.31.12.1986.

Course Co-ordinator, Commercial Art and Craft for Deaf and Physically Handicapped, (One year Diploma course) organized by Audit Continuing Education and Extension Centre, Jadavpur University for session 1988-89.

Collaborating Member from Mechanical Engg. Deptt. For UNESCO sponsored Course on "Refrigeration and Air-Conditioning for Technicians" to be organized by the Advanced Centre for Cryogenic Research, J.U.

Member, of a Committee set up to look after the Air Conditioning of Departmental Libraries of the University.

Member, Advisory Committee on Vernacular Textbooks in Engineering, West Bengal Book Board, Govt. of West Bengal.

Judge, West Bengal State Science Fair, 1993, W.B. Govt and NCERT (Organized by BITM, Calcutta).

Convener, Technical Programme Committees in National Solar Energy Conventions held at JU, 1990 & 1996.

Convener, 'Children's Science Congress' (3 days) section of Indian Science Congress held at JU, 1995

Judge, Intel National Science Fair, New Delhi, 2000

Judge, Intel National Science Fair, Mumbai, 2001

Organizing Secretary, 16<sup>th</sup> ISHMT & ASME Heat & Mass Transfer Conference held at JU, January, 2002. (Participants: 400)

Judge, National Science Seminar (All India), NCSM, New Delhi, 2003

Judge, National Science Seminar (All India), NCSM, Kolkata, 2004

Member, Scientific Review Committee (SRC) meeting for IRIS Science Fair (Org. by Intel, DST, GOI & CII) at Mumbai, 2006.

Member, Syllabus Committee, West Bengal University of Technology, 2004

Member, Syllabus Committee, Professional Engineers Exam, Institute of Engg., India, 2005

Member, Research Advisory Board, National Council of Science Museums, GOI, 2003 - till date

Member, Research Advisory Committee, NIJAFT, ICAR, GOI, 2004 – till date.

Evaluator of applicants for International Funding, Paul Foundation, Calcutta, 2001 – till date (Apeejay group)

Evaluator of projects, Jagadish Bose National Science Talent Search

Member, of the Senate of NIT, Agartala, from 2007

**19. Organized Courses / Seminars / Workshop etc. :**

- a. Short Course on Heat Transfer, M.E. Department 12-22, 1987 – Course Co-ordinator, organized for Indian Railways Institute of Mechanical and Electrical Engineering, Jamalpur, G.O.I.
- b. Organized Workshop on “Energy Conservation and Management” at the In-House training programme for executives at Jessop, India Ltd., Calcutta on 20.6.1988.
- c. Organized one week training programme on “Solar Energy Systems Operations and Maintenance” organized by SESI and School of Energy Studies, J.U. from 5.6.89 to 10.6.89. Delivered lecture and conducted Laboratory classes on “Solar Thermal Applications”.
- d. Member of Organizing Committee of “National Solar Energy Convention”, at Jadavpur University, Dec.19-21,1990. Was Convenor of Technical Programme Committee and Member of Publication Committee.
- e. Member of Organizing Committee of “Fifth National Conference on Religion, Culture and Politics” organized by the School of Women Studies, J.U., 9-12, February, 1991.
- f. Organized a Short term course on “Air-Conditioning and Refrigeration” in collaboration with Adv. Centre of Cryogenic Research, J.U., March 1992.
- g. Organized “J.B.S. Halaane Birth Centenary Celebration” by Jadavpur University (2-day Seminar Cum Exhibition), Feb. '92.
- h. Organized 2-day course on “Solar Water Heating Systems” sponsored by WBREDA and organized by School of Energy Studies, J.U., 27-28 Dec., 1993 as Course-Coordinator.
- i. Organized 3-day course on “Solar Water Heating Systems” sponsored by WBREDA, Govt., of W.B. and organized by School of Energy Studies, J.U., 29-31 Dec. 1993 as Course Co-ordinator.
- j. Organized 3-day course on “Solar Water Heating Systems” sponsored by WBREDA and organized by SESI, Eastern Region, Chapter 3-5, Jan. 1984 as Course Co-ordinator.
- k. Been the Local Sectional Secretary for “Science for School Studies” Forum Sub-Committee at the 82<sup>nd</sup> Science Congress 1995 during Jan. 3-8, 1995. Organised 3-day programme on “Science for School Students” with Quiz, Debate, Painting Competition, Meet the Scientist etc.
- l. Been one of the Working Group members of the AICTE sponsored ALL INDIA Seminar on “Planning & Management of Technical Education in India”, organized by J.U., 23-24, March, 1995.
- m. Organizing Committee member of the National Solar Energy Convention held at Jadavpur University during December, 1996. As convenor of the Technical Programme sub-committee, been in overall charge of conduction of the Technical Programme for 3 days.
- n. Organized several training programmes and one business meet from the “Regional Test Centre for Solar Thermal Devices” as detailed below :
  - Training programmes from 1993-1997 on Solar Thermal Energy

- Business Meet on Solar Energy on 27.06.97.
- o. Drafted the Syllabi of the 24-week course on “Energy Management & Audit of the School of Energy Studies conducted for professionals.
  - Was the Co-ordinator of the First Course, offered during 1994.
  - Presently the 4<sup>th</sup> Course is running and as member of the course committee looking after the smooth running of the course.
  - Taking classed on Thermodynamics, Boilers, & Solar Energy in the same course.
- p. Organized the ‘16<sup>th</sup> National & 5<sup>th</sup> ISHMT-ASME Heat & Mass Transfer Conference at Kolkata’ as the organizing Secy. Has a fund outlay of Rs.12 lakhs, was attended by 250 delegates.
- q. Organized Two day course on Lecturing and Explaining in Teaching, 16 - 17 December, 2005, Sponsored by UGC under the scheme ‘University with Potential for Excellence’ at JADAVPUR UNIVERSITY
- r. Organized Two day Course on Research Funding & Project Proposal, 17 – 18 February, 2006, Sponsored by UGC under the scheme ‘University with Potential for Excellence’ at JADAVPUR UNIVERSITY
- s. Organized Two day course on RESEARCH PROJECT PROPOSALS & FUNDING AGENCIES, 23 – 24 March, 2007, Sponsored by UGC under the scheme ‘University with Potential for Excellence’ at JADAVPUR UNIVERSITY
- t. Organized One day course on Clean Development Mechanism, 25<sup>th</sup> March, 2007, Sponsored by UGC under the scheme ‘University with Potential for Excellence’ at JADAVPUR UNIVERSITY
- u. Organised a Workshop on Services to Community and Economy Student Projects Organized under TEQIP - JU on March 31, 2009.
- v. Organised One day workshop on ‘History of Technology & Technical Education in India: A Synthesis’ on 27<sup>th</sup> August, 2010 at Jadavpur University.
- w. Organised One day Students’ Seminar on the occasion of 150<sup>th</sup> Birth Anniversary of Rabindranath Tagore on September 27, 2010 at Jadavpur University.

**20. Membership in Editorial Books / Reviewer for Journals etc.**

- A. Editorial Board Member of
  - i) University News Letter.
- B. Reviewe of
  - i) Indian Cryogenics Journal
  - i) Journal of the Institution of Engineers (India) – Mechanical
- C. Paper Reviewer of
  - i) Journal of Institute of Engineers, India
- D. Reviewer of Books for
  - i) Tata McGraw Hill
  - ii) West Bengal Book Board

**21. Experts in the Committees :**

- a) Thermal Laboratory Assessor, Deptt. of Science and Technology, Govt. of India

- b) Member of Board of Examiners, Boiler Operation Engineers Examination Boiler Directorate, Govt. of West Bengal (Nominated by the University).
- c) Managing Committee Member, Jadavpur Vidyapith (N&P) School.
- d) Managing Committee Member, Jadavpur University, Vidyapith (Day) School, (nominated by the University).
- e) Member, Tender Committee of Solar Thermal Devices, Govt. of West Bengal.
- f) Member, West Bengal Book Board (Technical).
- g) Member, R & D Committee, West Bengal Pollution Control Board.
- h) Member, Science Programme Advisory Committee, All India Radio.
- i) Been expert in Selection Committee of
  - i. Birla Industrial & Technical Museum, Govt. of India
  - ii. National Council of Science Museums, Govt. of India
  - iii. W. B. Pollution Control Board
  - iv. Silchar R. E. College
  - v. Durgapur R. E. College
  - vi. Indian Council of Agricultural Research (ICAR)
  - vii. Birla Institute of Technology, MESRA
  - viii. Sambalpur University, Orissa
  - ix. Tripura Public Service Commission
  - x. West Bengal Public Service Commission
  - xi. National Jute Research Laboratory, Govt. of India
  - xii. Union Public Service Commission
  - xiii. IIT, Kharagpur,
  - xiv. NIT, Durgapur
  - xv. CGCRI,
  - xvi. CSIR assessment board
  - xvii. Bengal Engg. & Science University
  - xviii. Private Engg. Colleges like Heritage, MCKV Etc
  - xix. NITTTR, Kolkata

MME & PHD Thesis examiners for various IITs & Universities

Project Reviewers of Research Projects of DST, TIFAC, MNES, WBREDA etc.

- j) Reviewer of Projects of :-
  - i. Department of Science & Technology, Govt. of India
  - ii. Department of Science & Technology, Govt. of West Bengal.
- k) Visiting NBA Expert for AICTE to Accredite Engg. College & Polytechnics at :-
  - i. West Bengal
  - ii. Assam
  - iii. Manipur
  - iv. Tripura

- v. Orissa
- vi. Tamilnadu
- vii. Andhra Pradesh
- viii. National Institute of Technology, UP
- ix. Anna University

Member, Syllabus Committee, West Bengal University of Technology

A member as an outside expert for performance audit of aerial passenger ropeway system in science city, Kolkata.

Member, Executive committee of Solar Energy Society of India

Nominated as an Expert member in the UGC Advisory Committee for Mechanical Engineering Group DRS support project in BITS, Pilani.

Nominated as a member of the Executive Committee of Birla Industrial & Technological Museum, NCSM, 2009 onwards.

Nominated as the Chairman of Assessment Committees for consideration of assessment cases of technical staff of NCSM.

Governing Body member of MCKV Institute of Engineering, Howrah 2008 onwards.

## 22. Honours and Awards :

- i. Obtained 16<sup>th</sup> position in the State of West Bengal in order of merit in the Higher Secondary Examination, 1963.
- ii. Awarded “National Scholarship” of the Government of India from July, 1963 to June, 1969.
- iii. Awarded University Grants Commission (U.G.C.) “Junior Research Fellowship” from August, 1969 to July, 1971 during post graduate studies.
- iv. Holder of U.G.C. “Senior Research Fellowship” from March, 1972 to August, 1973

## OWN RESEARCH ACTIVITIES

1. M.M.E. Thesis title: “Temperature distribution of a Semi-infinite plate due to a circular moving source of heat” (1971).
2. Ph. D. Project title: “A Regional Approach of Power Planning Strategies” (1982)

## GUIDED

### **A) Post-Graduate Project :**

- i) “Forecasting Methodology: A Case study applied to power Forecasting of West Bengal in 2000 A.D.” (1976).
- ii) “Electricity Supply Model: A Mathematical Programming Approach” (1977).

### **B) M.M.E. Thesis :**

- i) “Thermal performance of a Solar Water Heater with corrugated type collector plate” (1977).
- ii) “Design and Thermal Performance of Integral tube flat plate collector (1979).
- iii) “Outage Rate Analysis of Thermal Power Station” (1981).
- iv) “Design and Analysis of a Freen Vapour Jet Pump for use in a Solar Cooling System” (1983).

- v) Computer aided Design and Performance Analysis of a Mechanical Counter flow type Cooling Tower” (1983).
- vi) “Computer Simulation of a Solar Flat Plate Collector” (1983).
- vii) “Multi-objective Programming Models for Energy System (1984).
- viii) “Sizing of Solar Heating System by F-Chart Method” (1985).
- ix) “Computerised Design, Fabrication and Performance Testing of the double pipe Heat Exchanger” (1985).
- x) “Analysis of combined Radiative and Convective Heat Transfer from Small Tube Exchanger” (1985).
- xi) “On Performance and Top Loss Coefficient of a Solar Flat Plate Collector with two glass covers” (1987).
- xii) “Feasibility study of Solar Refrigeration by Vapour Jet Refrigeration Study” (1989).
- xiii) “Investigation of Convective Heat Transfer from Tube banks in cross flow” (1990).
- xiv) Simulation and Analysis of Vapur Jet Refrigeration System (1994).
- xv) Thermal Performance Testing & Comparative Evaluation of Test Standards of Solar Collectors with reference to ASHREE & BIS Codes (1997).
- xvi) On Testing of Solar Flat Plate Collectors (1997) [School of Energy Studies].
- xvii) On Thermal Performance of Solar Stills (1988).
- xviii) Comparative Analysis of Thermal Performance testing of Solar Flat Plate Collectors by Closed Loop & Open Loop Methods as per ASHRAE (1999).
- xix) A study of environmental & Economic effects of fuel change in small boilers in KMDA Area (2005)
- xx) Study of the Belliss & Morcom Instructional Turbine – commissioning, opening & reassembling (2005)
- xxi) Study & Experiment on Measurement of Critical Leak Flow Rates through slit using Leak Flow Measurement Facility at JU & Code Validation (2007)
- xxii) Clean Development Mechanism & Transport Sector in Calcutta (2008)
- xxiii) Experimental Studies on Critical Leak Flow through Slits in Pipes for Modeling, Simulation and Code Validation (2009)
- xxiv) Thermodynamic Optimization of Solar Collectors (ongoing)

**C) Ph.D. Programme (Completed)**

- i) A study on availability of wind power for low cost pumps – S. Neogi, 1993.
- ii) A language design for specification of continuum problems in Engineering and implementation of a solver generator – Sandip Das, 1997.
- iii) Second Law Analysis of Solar Flat Plate Collectors for optimum Performance – D. K. Mahanta (2002).
- iv) Thermodynamic optimization of Solar Thermal Devices – Suvra Mukherjee (Das) (2009)

**D) Ph.D. Programme (on going).**

- i) Development of an intelligent software for circulating Fluidized Bed Boiler (Registered in 2005) – Purnarbasu Bhattachryya



- ii) Study of Critical Flow through narrow Slits to Simulate Safety Related phenomena for HPHT Pipelines in NPP(Registered in 2008) – Sandip Ghosh
- iii) Impact of science and technology on society: A case study of Economy & Society activities under Technical Education Quality Improvement Programme of west Bengal (Registered in 2008) – Arpita Chakraborty

## RESEARCH PUBLICATIONS

### Journal (Authors, Title, Name of Journal, Vol. No., Page No., Year)

#### a. International:

1. “Mathematical Programming Models for Electricity Generation Expansion Systems – Modelling, Simulation Control, B. Vol.14, No.2, 1988, AMSE, France, pp.11-12.
2. “F-Chart Modelling for Solar Heating Systems in India-Modelling, Simulation and Control B. Vol.14, No.1, 1988, AMSE, France, pp.9-15.
3. Saha, S.K., Mahanta, D.K. “Thermodynamic optimization of solar flat-plate collector”, *Renewable Energy* 23 (2), 2001, pp.181-193.
4. Saha, S.K., Mahanta, D.K. “Internal irreversibility in water-heating solar flat-plate collectors”, *Energy Conversion and Management* 43 (2002) pp.2425-2435
5. Saha, S.K., Ghosh S., Mukhopadhyay D. “An Experimental Analysis of Subcooled Leakage Flow Through Slits from High Pressure High Temperature Pipelines”. Communicated to the *International Journal of Pressure Vessels and Piping* and is under review.

#### b. National:

1. “A case for atomic power plant in the Eastern Region”, Proceedings of the Seminar on “Prospects and Future of Atomic Power Generation in India”, Institution of Engineers (India), January 1973, pp.8-31.
2. “Linear Programming Techniques in Power Planning Problem”, Bulletin of the Institution of Engineers (I), May, 1973, pp.4-5.
3. “Some design aspects of I.C. engine piston heads”, *Journal of the Institution of Engineers (I)*, Vol. 54, Pt. ME 1, September 1973, pp.14-16.
4. “Application of Mathematical Programming to Electricity Models”, *Journal of the Institution of Engineers (I)*, Vol.60, Pt. ME 1, July, 1979, pp.3-6.
5. “Optimal Waste disposal model by transportation method”, *Journal of the Institution of Engineers (I)*, Vol.61, Pt. ME 5, March 1981, pp.181-183.
6. “Numerical Analysis of the some Performance Criteria of Mechanical Counter flow type cooling Tower”, *Journal of Institution of Engineers (I)*, Vol.65, Pt. ME 1, July, 1984, pp.18-25.
7. Saha, S.K., Mahanta, D.K. “Thermodynamic Analysis of a Solar Air Heater using Second Law Methods”; *IE(I) Journal*; July,2007; Volume – 88, pp.1 – 6.
8. Saha, S.K., Mukhopadhyay, S., Bandyopadhyay, B., Entropy Generation in the Fluid Flow of a Flat Plate Collector. Communicated to the journal “Institute of Engineers”, India and is under review.
9. Saha, S.K., Ghosh S. “Changes of core engineering education curriculum with technological development: a case study for Jadavpur University”; *The Indian Journal of Technical Education*; vol. 33, no 3, July-September 2010, pp 77-85.

### Number of Research Papers published / presented in National / International conference / conference proceedings

1. “Determination of Hot-spot diameter during flame heating in Semi-infinite plate”. Proceedings of the 16th

Congress of the Indian Society of Theoretical and Applied Mechanics, Allahabad, April 1972, pp. 51-60.

2. "Application of Industrial Engineering Strategies in Power Planning Problem". Proceedings of the Seminar on "Power for Industrial Reconstruction of West Bengal", Institution of Industrial Engineers (I), May, 1973.
3. "Multi-agency Management of Peak-loads – A case study for a large Metropolitan Area". Proceedings of the National Seminar on "Power Present Problems and Planning for future". Institution of Engineers (I), February, 1974. pp. 6-65
4. The use of the Fuel cells as Portable Power Packs", Proceedings of the "First Conference on Portable Power Source in India". May, 1976, Calcutta. organized by the Society for Advancement of Electro-chemical Science and Technology. India (SEAST)
5. "Rural Application of Solar Thermal Devices". Seminar on "Alternative Energy Resources for Rural Needs" organized by SESI and IEEI (J.U.) July, 1983
6. "Commercial Application of Solar Energy". Workshop on "Energy Conservation". Durgapur. organized by Association of Engineering Industry (Eastern Regional). November 24. 1984.
7. "A Methodology for F-Chart design for liquid systems for Indian Conditions" Proceedings of Seminar on Renewable Energy Sources, School of Energy Studies. J.U. February 14-16. 1985. pp. 1-12
8. "Design of Absorption Cooling System for Solar Energy Applications" Proceedings of Seminar on Renewable Energy Sources, School of Energy Studies. J.U. February 14 -16. 1985. pp. 20-28
9. "Burning Rice Rusk in a Horizontal Cyclone Furnace". Paper published in the Proceedings of the Conference "Innovation in Process Energy Utilization" University of bath(U.K.) organized by the Institution of Chemical Engineering, U.K., 16-18 September '87. Institute of Chemical Engg. Symposium Series No. 105, pp 339-349.
10. "Solar Energy Education in Developing Countries: Undergraduate Research Opportunities Programme in Solar Engineering at Jadavpur University". Paper Published in the Proceedings of UNESCO-SEFI International Symposium on "Innovative Methods in Technological Education, Orsay, Paris, 21-24, September, 1987. pp 467-474.
11. "Application of Statistical Techniques for Modelling of Solar Radiation Data Over Calcutta – A case study". Paper Published in the Proceedings of International Conference on " Modelling and Simulation", Association Advancement of Modelling and Simulation Techniques in Enterprises. (AMESE, France) at New Delhi, October 29-31, 1987. pp 27-42
12. "On Mathematical Representation of Wind Regimes of Southern West Bengal by Weibull Function". Paper Published in the Proceedings of International Conference on " Modelling and Simulation", Association Advancement of Modelling and Simulation Techniques in Enterprises. (AMESE, France) at New Delhi, October 29-31, 1987. pp 43-60.
13. "A Survey of Absorption Refrigeration and Vapour Jet Refrigeration System vis-à-vis Solar Energy Applications for Cooling in India – Renewable Energy for Rural Development, T.M.H. (Proceedings of the National Solar Energy Convention, Hyderabad, Dec. 1-3, 1988), pp 430-436.
14. Minimisation of Entropy Generation in a Solar Flat Plate Collector – Renewable Energy for Rural Development, T.M.H. (Proceedings of the National Solar Energy Convention Hyderabad, Dec. 1-3, 1988), pp 65-70.
15. Terotechnological Aspects of Solar Water System. A review - Proceedings of the International Seminar on Terotechnological Impact on Equipment Design organized by Deptt. of Mech. Engg., J.U. (Association of Engineers, India), pp 93-97 (19-20 Dec, 1988)
16. Parametric Study of Parallel Flow Flat Plate Solar Collector Using Finite Element Method (Co-author : D.Misra et al) – Numerical Methods in thermal Problems Vol VI, Part 2, Pineridge Press. U.K. (Proceedings of the 6th International Conference held in Swansea, u.K. July 3-7, 1989) pp 1508-1516.
17. Ideal Refrigerant for Solar Vapour Jet Cooling in India, Renewable Energy and Environment, Himangshu Publications, Udaipur (Proceedings of the National Solar Energy Convention, Dec. 1-3, 1989) pp 261-264.
18. Solar Cooling by the vapour Jet Refrigeration System : A feasibility Study – Renewable Energy an Environment. Himangshu Publications, Udaipur (Proceedings of the National Solar Energy Convention, Dec. 1-3, 1989) pp

19. Energy of Solar Thermal Collectors - Renewable Energy an Environment. Himangshu Publications, Udaipur (Proceedings of the National Solar Energy Convention, Dec. 1-3, 1989) pp 643-649.
20. Formalisation of Field Problem Specification for Computer Analysis (Co-author: Sandip Das) – Engineering Software, Narosa Publishing House, Proceedings of the International Conference on Engineering Software at IIT, Delhi, Dec 4-7, 1989), pp 643-649.
21. Designing a Goal Oriented Mechanical Engineering Curriculation Proceeding of the National Workshop on Trends in Mechanical Engineering Education and Research (Dec 22-23, 1989) IIT, Kaharagpur pp 7-1 to 7-5.
22. Formalization of Field Problem Specification for Two Dimensional Finite Element Analysis (Co-author: Sandip Das) – Advanced Computational Methods in Heat Transfer, V.I. (Proceedings of the 1st International Conference, U.K., July 17-20, 1990), Springerverlag, pp 407-418
23. Thermodynamic Optimization of Solar Thermal Collectors - Integrated Renewable Energy for Rural Development T.M.H. (Proceedings of the National Solar Energy Convention, Jadavpur University, Dec 19-21, 1990) pp 48-51.
24. Field Testing of Solar Flat Plate Collectors - Integrated Renewable Energy for Rural Development T.M.H. (Proceedings of the National Solar Energy Convention, Jadavpur University, Dec 19-21, 1990) pp 61-64.
25. Optimal Materials and Manufacturing Methods of Flat Plate Collectors for Improved Performance and Maintainability - Proceedings of the Seminar on Potential of Non Conventional Energy Technologies in the Armed Forces, Pune, Jan 22-23, 1991, published by Institution of Military Engineers, College of Military Engineering, Pune – 411031. pp 10-14.
26. A Parametric Study by Second Law Analysis for Optimal Design and Operation of Solar Thermal Collectors – paper presented at National Solar Energy Convention, Pune, Dec. 16-18, 1991.
27. Commercialization and Standardization of Solar Thermal Devices in India - paper presented at “Solar Energy in India – Present Status, Problems and Prospects” Institution of Engineers (I), 5-6, Feb, 1993, Calcutta.
28. Second Law Efficiency of Solar Flat Plate Collectors - Paper Published in the “Proceedings of the Seminar on Solar Energy in India – Present Status, Problems and Prospects” Institution of Engineers (I), 5-6, Feb, 1993, Calcutta.
29. Review of Policy statements on use of Solar Water Heating Systems - Seminar on “Solar Energy as Non-Conventional Energy Source”, Organized by Science for Society (India) on 11th March, 1994 at Calcutta, J.U.
30. Testing of Solar Collectors as per National Standards at Regional Test Centre, Jadavpur University – Proceedings of the Indo-German Workshop on Solar Collector Testing, Solar Energy Centre, MNES, 23-25, May 1994, pp 127-129.
31. Solar Thermal Technology Status – Proceedings of “North Eastern & Eastern Regional Meet on Renewable Energy: Status & Policy” organized by Solar Energy Society of India (ER Chapter) and West Bengal Renewable Energy Development Agency, 2-3 Dec. 1995, pp 27-29.
32. Solar Cooker Testing : Some suggested Modifications – (Co-author T Bhaumik). Towards clean energy, proceedings of the National Solar Energy Convention, 27-29 December 1996, Calcutta.
33. The road to renewable energy Development – obstacles to be removed : paper presented at the First All India people’s Technology Congress at Calcutta, 20-23, Feb, 1997, organised by Forum of Scientists, Engineers & Technologists.
34. Cooling Devices – design & Applications. Paper presented at the Workshop cum Exhibition on Ventilation, Cooling & Refrigeration, May 15-16, Calcutta, organised by CII, Eastern Region.
35. Problems & Prospects of Solar Thermal Business: Working paper presented at the Business Meet on Solar Thermal Devices, 27th June, 1997, Calcutta, J.U. organised by Regional Centre for Solar Thermal Devices, School of Energy Studies.
36. Economics & social benefits of solar cooker use – a case study accepted in National Solar Energy Convention 1998 to be held on No. – Dec’98 at University of Roorkee. p. 373 - 376

37. Saha, S.K., Mukhopadhyay Subhra, Thermodynamic Optimization of Solar Collectors. Presented in Renewable Energy Congress held on January 14-16, 1999 at the University of Kalyani. p.112 – 119
38. S.K.Saha, T.Bhaumik & D.K. Mahanta, Experience with Community Cooker in the Eastern Region of India: A case study, Renewable Energies & Energy Efficiency for Sustainable Development, TMH, 1999, p. 65 – 68.
39. P.K. Lahiri, P.D. Kashyap, S.K.Saha, Renewable Energies & Energy Efficiency for Sustainable Development, TMH, 1999, p. 95 – 97
40. Saha, S.K., Mahanta, D.K. (2000). 'Finite-time optimization of a solar flat plate collector', in the Proceedings of the ISHMT/ASME conference, 2000 held in Pune, 1009-1014.
41. Saha, S.K., Mahanta, D.K., Second Law analysis of solar air heaters, Proceedings to the ISHMT/ASME conference, held in Jadavpur University, Heat and Mass Transfer 2000, p. 1352 – 1357.
42. Saha, S.K., Mahanta, D.K. Finite-time thermodynamic of solar air heater, in the proceedings of the Renewable Energy Conference, 1999 held in DAVV, Indore, pp 264-267.
43. Saha, S.K., Mahanta, D.K., Heat Exchanger irreversibility in a water heating solar flat-plate collectors, in the proceedings of the Renewable Energy Conference, 2000 held in IIT, Bombay, pp 14-18.
44. Saha, S.K., Datta Gupta, K.K., Mallick A.K., Chakraborty S. Estimation of Hourly Global And Diffuse Radiation in Kolkata on a Clear Day, Published in the proceedings of the 26th National Renewable Energy Convention of Solar Energy Society of India & International Conference on New Millenium – Alternative Energy Solutions for Sustainable Development, PSG Tec., Coimbatore, Jan 17-19, 2003, pp 381 - 385.
45. Technological Marginalization: The case of Power Generation Technology. Presented in the National Seminar on Marginalization and Technology organized by Deptt. of Sociology, Jadavpur University during 15-16 November, 2002 . p. 45
46. Saha, S.K., Datta Gupta, K.K., Mallick A.K., Chakraborty S., "Estimation of Hourly Global And Diffuse Radiation in Kolkata on a Clear Day", Proceedings of the 26th National Renewable Energy Convention of Solar Energy Society of India & International Conference on New Millenium – Alternative Energy Solutions for Sustainable Development, PSG Tec., Coimbatore, , pp 381 – 385 , Jan 17-19, 2003.
47. Saha, S.K., Lahiri P.K., Kashyap P.D., "Frequency distribution of clearness indices for indeterminate months". Collection of Technical Papers – 2nd International Energy Conversion Engineering Conference 3, pp 1630-1636. 2004.
48. Saha, S.K., Lahiri P.K., Kashyap P.D., "Evaluation of models for predicting long-term distribution of daily clearness indices for indeterminate months". Collection of Technical Papers – 2nd International Energy Conversion Engineering Conference 3, pp 1637-1642. 2004.
49. Saha, S.K, "Modules of Renewable Energy Education for Developing Countries", Energy Technologies for Sustainable Development, Prime Publishing House, Ghaziabad, pp 560 – 563, 2004.
50. Saha, S.K, "Creativity & Systems Approach In Mechanical Engineering Education: A Review", proceedings of Applying Creativity & Systems Thinking for Business Innovation, pp 27 – 34, April 23-24, 2004.
51. Saha, S.K., et al, "Design Aspect of Experimental Facility for Validation of Leak Flow Rate Models for Leak before Break Analysis"; Proceedings of 18th National & 7th ISHMT – ASME Heat and Mass Transfer Conference; IIT Guwahati;; p. 1657 – 1665, 4 – 6 January, 2006.
52. Saha, S.K., et al, "Sensitivity Analysis of the parameters of a Solar Flat Plate Collector for Performance Studies" Proceedings of National Conference on Energy research"; IIT Mumbai; p.515 – 520, ; 4 – 5 December, 2006.
53. Saha, S.K, et al, "The Techno – Societal Interaction, A Case Study: Services to Community and Economy Activity under Technical Education Quality Improvement Programme in Jadavpur University", Published in the proceedings of the National Conference on Technological Advances and Emerging Societal Implications (TAESI – 2007); NIT Rourkela; 24 – 25 March, 2007.
54. Saha, S.K, Dr D K Mahanta, "Thermodynamic Analysis of a Solar Air Heater using Second Law Methods"; IE(I) Journal;; Volume – 88, p.1 – 6, July, 2007.

55. Saha, S.K, et al, "Measurement and Analysis of critical leak flow rates through slit using high – pressure high temperature leak flow measurement facility at Jadavpur University and Code Validation"; Paper accepted for 19th National & 8th ISHMT – ASME Heat and Mass Transfer Conference; JNTU College of Engineering, Hyderabad; 3 – 5 January, 2008.
56. Saha, S.K., 'Introduction to Renewable Energy' : A Keynote Address. 24th National Convention on "Energy Security through Renewable Energy Sources", the Institution of Engineers (India), January, 2009, pp 5-10, Raipur.
57. Das S, Mishra D., Saha, S.K., Ghosh S., Ghosh B., Mukhopadhyay D., Lele H.G., Ghosh A.K., Kushwaha H.S. "Leak Rate Modeling and Experimentation Program". 5th Indo-German Theme Meeting on 'Structural Integrity of Pressure Retaining Components' jointly organised by Jadavpur University & BARC, 18th February, 2009, Jadavpur University, Kolkata.
58. Mukhopadhyay, S., Bandyopadhyay, B., Saha, S.K.. "Thermodynamic Optimization of the performance of a Flat Plate Collector". Proceedings of International Conference on Issues and Challenges in Energy Conversion and Management. 18th – 20th Dec., 2009, BHU.
59. Mukhopadhyay, S., Bandyopadhyay, B., Saha, S.K., "Entropy Generation in Flat Plate Collector as a function of Plate Temperature". Proceedings of the International Conference on Emerging Technologies in Environmental Sc. And Engg. AMU in conjunction with University of Toledo, Ohio, USA, Oct 26-28, 2009.
60. Saha, S.K., Ghosh S., Mukhopadhyay D., Mondal S. "Experimental Investigation of Subcooled Critical Flow Through Slits". Proceedings of the ISHMT -ASME Heat and Mass Transfer Conference to be held on January 4-6, 2010, Mumbai.
61. Saha, S.K. "Curriculum Design of Mechanical Engineering in a Developing Country". Proceedings of the ISEE2010 – 3<sup>rd</sup> International Symposium for Engineering Education, Cork, Ireland, June 30 - July 2, 2010.
62. Saha, S.K. "The origins of technical education in India: study of different approaches". Proceedings of the 4th International Conference of the European Society for the History of Science, November 18-20, 2010, Barcelona.
63. Saha, S.K., Rahman, Syed Mujibur. "Thermodynamic Optimization of Solar Heating Systems: The Exergetic and Entropy Generation Method for a Sustainable Future". Paper accepted for ICORE-2010, Chandigarh.
- 64.

#### **Books, Monograph, etc. (Authors, Title, Publisher, Year)**

1. Technical Presentation – An integrated Approach, Mech Engg Deptt, J.U., Nov, 1981 – Jt. Author.
2. Bijnaner Hajaro Prashna (Thousand Questions and Answers on Science), Model, April, 1983, 2nd Ed. Feb, 1985, 3rd printing jan. 1992 – Jt. Author
3. Bijnan Kosh (An Encyclopedia of Science and Technology in Bengali) - Vol 1, Model, April 1985 – Asstt Editor
4. Bijnan Kosh (An Encyclopedia of Science and Technology in Bengali) - Vol 2, Model. Sept. 1988 – Asstt Editor
5. Chabite Mahakash Abhijan (Space Conquest in Picture) – Ananda, April, 1990 – Author.
6. Integrated Renewable Energy for Rural Development, Tata Mcgraw-Hill, Dec 1990 - Jt. Editor.
7. Science, Society and Haldane (Monograph in Bengali), Jadavpur University , Feb 1992 – Editor.
8. Solar Water Heater – Prajukti and Rakshanabekshan – School of Energy Studies, J.U., Dec 1993 (Bengali), Author.
9. Solar Technology – Uses & Maintenance (Bengali, Co-authors: Dr. B.Ghosh & Tamal Bhowmic), March, 1995.
10. Proceedings of the Seminar on Planning & Management of Technical Education in India (jt. Editor) March, 1995.

11. An Introduction to Solar Thermal Devices for School Students (Manuscripts form, Prepared of MNES, Govt. of India.
12. Towards Clean Energy – Proceedings of the NSEC-96 (Jt. Editor) – Dec. 1996.
13. Solar Thermal Technology (Bengali) – March, 1997 – Author.
14. Steam Tables & Chart in SI Unit – Vikas Publishing Co., 1998 – Author.
15. Heat & Mass Transfer 2002 – Tata Mcgraw Hill (Jt. Editor). 2002.
16. Samir K Saha (ed.) 'Technology to Society: A Compendium of Action Research Publications and Reports on Services to Community and Economy under Technical Education Quality Improvement Programme', State Project Facilitation Unit, West Bengal and Jadavpur University, December 2007.

### Other Articles Published

- |    |  |   |   |
|----|--|---|---|
| 1  | The Story of Atom  | : | Park Institution Journal, 1962  |
| 2  | Wanted Atomic Power Plant for Campass  | : | Vol 10. No.20, 16th June, '73 West Bengal                                 |
| 3  | In Memories (Bengali)  | : | Saheed Swarane. 1981 Jadavpur University                                  |
| 4  | Give them a Builder's outlook  | : | Souvenir of 3rd State Level Science Exhibition Jawahar Sishu Bhavan, 1997 |
| 5  | Proving the heart of matter by   | : | Bijnan, No.4, September, 1981, J.U. A. Salam (translation to Bengali)     |
| 6  | Are Professors reluctant to teach  | : | Aaj Kal, News daily, 18.08.81. – letter to Editor (Bengali)               |
| 7  | Translation from J.B.S. Haldane (Bengali)                                    | : | Sayan, Vol1, No.1, March, 1982.   |
| 8  | Science, Society and Mass  | : | Bijnan, No.5, July 1982, J.U. organizations (Bengali)                     |
| 9  | Men behind the laws of Thermodynamics  | : | Chayapath, F.E.T., Journal 1981-82. (Bengali)                             |
| 10 | Where should our Science   | : | Students to go to abroad, J.B.S.  |
| 11 | Haldane (Translation in Bengali)   | : | Chayapath, F.E.T., Journal 1981-82  |
| 12 | Book Review (Physics) (Bengali)  | : | Bijnan, Vol.7, Sept. 1984, J.U.   |
| 13 | Automatic and Man  | : | Bijnan, Vol.7, Sept. 1984, J.U.   |
| 14 | The power Crisis in West Bengal– An Analysis                                 | : | Break Through, Vol.1, No.1, Nov. 1984                                     |
| 15 | Bhopal, Accident or Premedicated Genocide (English)                          | : | Break Through, Vol.1, No.2, Nov. 1984                                     |
| 16 | In Search of alternative energies Heat from Sun (Bengali)                    | : | Basumati (Monthly), Feb 1985.   |
| 17 | The Solar Thermal Option a Step towards renewable nonpolluting energy August | : | Trend, Dept. of Architectures, J.U. 1985.                                 |
| 18 | In Memories Niels Bohr   | : | Break Through, Vol.2, No.1, Dec. 1985                                     |

- 19 Thermal Power – Production and uses : Bijnan Jagat, Vol.4, Nos.3-4, September
- 20 On Building a better engineering : 3rd Reunion of Mechanical Engg. Dept., Educational Environment Journal, March 1986.
- 21 On Space Telescope (Bengali) : Bijnan Jagat, Vol.5, Nos.4, (West Bengal Book Board)
- 22 Role of Science Clubs in People’s Science Movement (Bengali) : Spandan, 21st Vol. 1st Issue, Jan 1987
- 23 To become a Scientist (Bengali) : Souvenir, Jadavpur Manimala, September 6, 1987.
- 24 Need based planning for Engg. Education : Souvenir, 6th Reunion of Mechanical Engg. Dept., of 5th March, 1989.
- 25 Present state of Art Renewable and Non Conventional Energy Sources: An overview for Identification of Research and Development Needs : Thought, Vol.III, No.1, 1990, p.4-10.
- 26 The role of Science Clubs (Bengali) : Anyachokh, August, 1990.
- 27 From Darkness to Light : Jadavpur University News Letter, Vol. No.1, 24th Dec, 1990.
- 28 Solar Thermal Energy – Application Areas and Potential : Search (Journal of JURSA) issue.1.
- 29 Mahakash Abhijan (Bengali) : Anandamala, 27th Dec. 1990 issue.
- 30 J.B.S. Haldane (Bengali) : Nabadiganta, April 1992.
- 31 Use of Solar Energy : 29th Reunion Technical of Jamalpur Apprentices, Liluah 22-23 Jan 1984.
- 32 Biography of J.B.S.Haldane (Bengali) : “Centenary Respects” – A Bengali Collection Published by the Calcutta Corporation, February 1994.
- 33 Present Social Environment & the mind of the children (Bengali). : Souvenir, Jadavpur Manimala, 7th January 1995.
- 34 Solar Thermal Devices in India : 30th Reunion Technical Brochure of E. Rly. Apprentices of Jamalpur at Liluah, January 21-22, 1995.
- 35 Solar Thermal Applications in India : 31st Reunion Technical Brochure of E. Rly. Apprentices of Jamalpur at Liluah, January 20-21, 1996
- 36 NCE theke Jadavpur University : Uttaran (in house magazine at J.U., 2001
- 37 Nationalist Perspective in Technical Education in Bengal: The Origin’ : History of Science Meet, April, 2009 souvenir, INSA, New Delhi.
- 38 Knowledge Economy & Industry Institute Partnership: An academia paradigm : Annual Reunion souvenir, Mechanical Engineering Department, Jadavpur University, 1<sup>st</sup> March, 2009,
- 39 A Note on ‘Teaching & Research’ : Current Science Journal, 25 October, 2009 issue.

## OTHER ACADEMIC & PROFESIONAL ACTIVITIES

- a) Delivered Radio Talks in Bengali/English in All India Radio, Calcutta.

- i) Sakti Sankat - Surya (Sun), 20.11.84 (Published in "Beter Jagat" 1-15, March, 1985.
- ii) Ghare Ghare Refrigerator, 11.04.85.
- iii) Space Telescope, 08.09.86.
- iv) Science Quiz on Space, 31.12.96, 06.01.87.
- v) Ozone Holes, 11.03.87 (World of Science Series) in English.
- vi) Mach Dharte Electronics, 12.05.88.
- vii) Batash Theke Shakti, 28.8.89.
- viii) Contribution of Bengali Scientists in the last 100 years, Bengali Talk - 09.04.93.
- ix) Laster in Defence, Talk in Bengali 26.5.94.
- x) Quartz Ghari - 08.02.95.
- xi) Ki Bhaba Faner Haoya Beshi Pete Pari - 01.04.95.
- xii) Shakti Kam Kaj Beshi -10.05.95.
- xiii) Jore Dourobar Juto - 27.06.95.
- xiv) Payer Janya Bhalo Juta -10.10.95.
- xv) Roj Charar Cycle - 08.12.95.
- xvi) Payer Janya Bhalo Juta - 28.06.96.
- xvii) Kajer Upajukta Chair- 19.10.96.
- xviii) Roj Charar Cycle -17.05.97.
- xix) Dushan-O-Two Wheeler - 17.05.9
- xx) Shakti Sangrakshna Bikalpa Sakti - 03.10.97.
- xxi) Ghari – 8.5.2002

## **RESPONSIBLE POSITIONS AT UNIVERSITY BESIDES DEPARTMENT / SCHOOL OF ENERGY STUDIES AND**

### **PROJECTS:**

- i) Was actively involved with the activities of the Adult Continuing Education & Extension Dept. for the University as : -
  - a) Course Committee Member – Selection & Design of Courses
  - b) Distance Education Committee Member – Planning for initiation of the Distance Education Programme of the University.
- ii) Convener, Technical Programme Committees in National Solar Energy Conventions held at JU, 1990 & 1996.
- iii) Convener, 'Children's Science Congress' (3 days) section of Indian Science Congress held at JU, 1995.
- iv) Was QIP Coordinator of Jadavpur University from February 1, 1997 to January 2003 . The job was an honorary one and involves coordinating the AICTE sponsored Quality Improvement Programme of the University at both M.Tech. & Ph.D. level by interacting with the Department Heads. Research Section and the Principal QIP Coordinator at Bombay IIT . Also was QIP Coordinator ( Poly) for last 2 years .
- v) Was the Joint Director of the School of Energy Studies, Jadavpur University from 1997 – 2003 .
- vi) Had been Head of Mechanical Engg. Deptt. , Jadavpur University from 10.4.2000 to 9.4.2002 for 2 years.

### **As Head**

- a) actively involved in encouraging research .
- b) arrange for interaction of foreign Universities of USA & Germany .



- c)
- d) actively involved in bringing a project DST-FIST of Rs. 50 lakhs for the Deptt. .
- e) running day to day administration .
- vii) Member, Research Advisory Committee, National Institute of Jute & Allied Fibers, ICAR, Govt. of India. 2004 - 2007
- viii) Member, Research Advisory Board, National Council of Science Museum, Govt. of India. 2002 - 2006
- ix) Was member, planning & monitoring committee, Birla Industrial & Technical Museum, Govt. of India for last 6 years.2000 - 2005
- x) Was member, (West Bengal Pollution Control Board) Project Steering Committee for the project "Pollution Prevention & Waste Minimization of SSI units of Calcutta Metropolis area "funded by India Canada Environment Facility, New Delhi, 2002 - 2007.
- xi) Was Member, Technical Scrutiny Committee & Steering Committee of Indo Canadian Env. Facility (ICEF) funded project (Rs.16 cr.) of WBPCB on "Pollution Prevention & Waste Minimization of SSI units of Calcutta Metropolis area", Govt. of W.B., 2002 – 2007.
- xii) Was **Director, Academic Staff College, Jadavpur University** for 2 years (12.08.02 – 21.07.04 on lien from the post of Professor)

#### Activities as **Director of Academic Staff College**

- a) Creation of space infrastructure
- b) Recruitment and creation of manpower infrastructure
- c) Guiding in the conduction of about 40 refresher courses for tow academic sessions including academic planning to finalization of accounts
- d) Guiding in the creation of networked computer lab solely for the UGC – ASC
- e) Member of Syllabus Committee for introduction of I.T. course in orientation programmes.
- xiii) Presently, Nodal Co – ordinator of the 'Services to Community & Economy' activities under the TEQIP programme, JU ( a World Bank funded project of Govt. of West Bengal) carrying out overall management and monitoring of 34 activities involving a fund of Rs. 1.35 Crores from April 2007.
- xiv) Entrusted by the Higher Education Deptt. Govt. of West Bengal to publish a Compendium of such activities, 2007
- xv) Member of Virginia Tech – JU Collaborative programme.
- xvi) **Visited Virginia Tech. from 31<sup>st</sup> May to 5<sup>th</sup> July, 2006, and worked on 'Carbon Trading & Clean Development Mechanism' with Prof. I.K.Puri, Head, ESM Deptt., Virginia Tech., USA**
- xvii) Member, Academic Committee, School of Energy Studies & School of Women's Studies, 1990 – till date
- xviii) Jt. Organising Secretary, Centenary Celebrations of Mechanical Engg. Deptt. March 2005 to till date.
- xix) Convener, Safety Committee of a BRNS sponsored project titled "Experimental Investigation on Critical Flow Behavior for Pipe Crack under Bending Moment", August 2009.
- xx) **Panel member** At discussion at the national seminar on "**Energy Security & Nuclear Power –An Indian Perspective**", organised by NCE & Jadavpur University Alumni Association in collaboration with Jadavpur University, 20<sup>th</sup> June, 2009, Jadavpur University, Kolkata.
- xxi) Nodal Person, Audit Courses organised by Jadavpur University commencing from January, 2010.
- xxii) Administrative Committee Member of a BRNS sponsored project "Experimental Investigation on Critical Flow Behaviour for a Pipe Crack under Bending Moment" at the Mechanical Engineering Department, Jadavpur University.
- xxiii) Convener of safety committee of the BRNS sponsored project "Experimental Investigation on Critical Flow

Behaviour for a Pipe Crack under Bending Moment" at the Mechanical Engineering Department, Jadavpur University.

- xxiv)** Member of the committee on "Rare books, Manuscripts and Audio Preservation" formed in May, 2009.
- xxv)** Coordinator, Services to Community & Economy programmes under TEQIP-JU (phase I) from 2007. That involved handling of 30 projects worth Rs. 1.3 crores.
- xxvi)** Academic Committee members of
  - i) School of Energy Studies
  - ii) School of Nuclear Studies
  - iii) School of Women's Studies
  - iv) Centre for Counselling Services and Studies in Self-Development
  - v) Regional Test Centre for Solar Thermal Devices

Samir Kr. Saha

Date :

[ Prof. Samir Kumar Saha ]