Bibliometric Studies

To begin with the literature search was carried out to identify related works. We found that there is no such study. The work started with the downloaded data from CD-Room version of Ulrich International Periodical directory. The data is downloaded up to the year 1995. The data is partially converted into dBASE format for further analysis. It is observed that up to 1995, the total number of journals produced at the global level is around 1,69,243

Completion of the conversion of data into dBASE format. The data form the national union catalogue of scientific serials has to be collected. In the next one year, the following set of analysis has been planned to carry out.

DSS for Library planning

A literature survey was done on this topic. Various models for a Decision Support System and its application to Library and Information science and library planning were studied. A conceptual framework/model of a system for planning a library and information centre is designed. We are in the process of writing a program for the system using these parameters.

Designing a complete automated system for setting up of a library and information centre and Designing a Decision Support System for the management of a Library and Information Centre will be undertaken.

Automated DDC

This project basically attempts to develop a model for automatic classification using the techniques of Artificial Intelligence. The models consist 1. A natural language parser 2. A frame based expert system to represent the schedules of DDC 3. A rule base for computing the classification number. Presently, the design of the first module is underway. We have identified Definite Clause Grammars for the syntactic analysis, which requires a lexicon of subject key terms, which are taken, form the relative index of DDC.

The work on building the parser is to be completed. Work on the expert system aspects will commence.

Libraries

Calcutta

With the addition of 1104 books and 1366 bound journals to the stock, the total collection of the Library rose to 2,08,594.

Acquisition Unit

The Unit accessioned 1104 books during the period of which 934 books were purchased and 170 books were received on complimentary basis. Out of 934 purchased books, 171 books were funded by National Board of Higher Mathematics (NBHM). Besides this, the Unit accessioned 450 books acquired by different units of the Institute as Project Collection.

Periodicals Unit

The Unit received 685 journals out of which 436 were purchased, 169 in exchange and 80 as gift. 80 journals were subscribed under NBHM Grant II accessioned 1366 bound volumes and completed the technical processing of 1784 volumes 1637 set of journals were processed for binding The Unit received 1300 issues of journals. Monthly Bulletins of Current Journals were prepared and circulated to the users of the Institute and other organizations.

Circulation & Stack Maintenance Unit

The Unit issued 64356 books and journals to the users on loan and reference. The total membership of the Library was 1864 which includes ISI staff, Research Scholars, Project Assistants, B.Stat. & M Stat. students. ISEC Trainees etc. as well as outside students and institute members. 1386 readers were given special permission to use the library for a short period 84 books and journals were borrowed from other libraries and 79 books and journals were loaned to other libraries under the inter-library loan arrangement.

Reports & Records Unit

The Unit processed 253 titles. 1430 titles were issued to the borrowers for reference. 800 documents were collated and sent for binding.

Circulating Library

The Workers' Circulating Library acquired 309 new titles bringing the total collection to 36,607. It issued 23927 books to the members.

Technical Processing Unit

The Unit classified and catalogued 1445 books and developed the database on LYBSIS. The database is searchable by author, title, series, class numbers and key words. The Unit issued 12 issues of current additions to the library.

Documentation Unit

The Unit has been issuing current contents list services to the users on the following group of subjects

(a) Statistics and Mathematics. (b) Electronics and Communication Sciences. (c) Geology. (d) Life Sciences. (e) Economics. (f) Recent addition of books to the ISI Library. The Unit prepared a computerised database on National Sample Survey Reports in ISI Library, Calcutta. The database is maintained on Floppy Disk and searchable by CDS/ISIS.

Reprography & Photography Unit

The Unit provided 7,91,363 xerox prints for the users. 791 frames of photographs of different nature, 1863 photographic enlargements were made during the period. 3,50,403 pages off-set prints were done during the period.

Projects Undertaken

Development of Computerised Catalogue

The Project initiated in August 1996 is in progress. Currently, data base of books in the areas of Mathematics and Computer Science have been completed. The work is in progress in the following areas :

Economics. Technology, Biology, Medical Sciences and NBHM Collection. The computerisation of the serial management has been started.

Identification and Selective Rectification of Gaps in the Periodical Collection

Updated the inventory of incomplete journals covering the period 1988-94. Completed the verification of cataloguing data of more than 2100 titles. Completed the OPAC (On-line public access catalogue) of periodical collection using CDS/ISIS. This database is searchable by title, keyword and class nos.

Re-classification of Books on Statistics and Mathematics

Books on Computer Science were re-classified according to twenty-first edition of DDC. Total number of books re-classified was 4250, no. of cards withdrawn and filed were 17,780 Reclassification in the areas of Probability, Applied Mathematics is in progress.

Computerisation of Library Activities

To provide information support and increase efficiency of library services, the Central Library at Calcutta has started the process of providing computerised library services. It is expected that in the near future, the library will be hooked to national and international databases through various library networks and internet. The E-mail facilities are now being used directly from the Library's Computer Room for contacting universities and research institutions as well as publishers and book-sellers.

CDS-ISIS, a software package developed by the UNESCO for information storage and retrieval has been acquired. The Library has acquired LIBSYS - software for computerisation of its activities. The Library has started CD-ROM based information retrieval services to the users. The Math Sci Disc CD-ROM version of Mathematical Reviews and Current Mathematical Publications acquired by the Library covers the international research literature in Mathematics and related areas such as a statistics, computer science, econometrics etc. The library collection also includes the 1991 Census Data in Floppy To provide the computerised services to the users, the library has acquired necessary hardware.

The Library has already initiated the process of creating the database of its holdings and completed inputting of about one lakh of its holdings of journals, reports and records as well as books in the areas of Mathematics, Computer Science, Physical and Earth Sciences and Social Sciences

Delhi

Acquisitions

Due to budget constraints, only 317 new books could be purchased and added to the stock. Received 79 publications as gift from various sources. 517 sets of loose issues of periodicals duly bound have been added to the stock, thus raising the stock to 34854 volumes. About 175 Technical Reports/Discussion Papers/Reprints etc in Economics/Mathematics and Statistics have been received during the above period in exchange for our Discussion Papers in Economics.

Standing order for the series "Lectures on Mathematics and Physics (TIFR)" has also been renewed during the period.

Periodicals

240 titles of Journals, both foreign as well as Indian have been renewed for the year 1997-98. 517 sets of loose issues of journals duly bound have been added to the stock. More than 500 sets of loose issues of journals are ready for giving out for binding.

Ten journals are being received under the exchange programme established with different institutions in exchange for journal Sankhya, Journal of Maulana Azad College of Technology and Publications in the series "Texts and Readings in Mathematics".

Circulation

During the period April 1, 1997 to March 31, 1998; 158 members availed the lending facilities as permanent members. About 495 members availed the reference facilities as temporary members. More than 7000 publications were circulated during the period among members Under the inter library loan program, about 52 publications were lent out to the neighbouring institutes and libraries and 32 publications were borrowed from them for use by Delhi Centre Library members.

Reprographic Services

Approximately 20642 photocopies were made during the period on the request of users. Reprographic facilities have also been provided to researchers of other institutes on a nominal payment.

Other Activities

The National Board of Higher Mathematics, Department of Atomic Energy, Govt of India has recognised Indian Statistical Institute, Delhi Centre Library as a Regional Library to serve the Northern Region since 1.4.1994. An annual grant of Rupees 8.00 lakhs had been sanctioned for the period April 1, 1997 to March 31, 1998

Like every year this year too, library trainees with remuneration were appointed. At the end of their training each trainee was given an experience certificate.

ISI Delhi Centre Library has decided to automate its activities and has also purchased a library automation package named "LYBSYS" Training is on for the said package. Two members per module are being trained by LIBSYS Corporation.

Bangalore

Book Acquisition

During the above period 549 books were added to the library by purchase. 40 books were received on gratis.

Stock position : The total stock position as on 31st March 1998 is as follows :

Books 14987, Books on gratis 1008, Bound volume of Periodicals 7500, No. of periodicals subscribed 260, No. of periodicals received on gratis 10.

Technical Processing

About 410 books were classified and catalogued during the period and nearly 1700 catalogue cards were filed

Circulation Statistics

During the period library facilities were enjoyed by 320 users. 180 of them availed the lending facilities 4 Visiting Professors of different units of ISI were also provided with the lending facilities. A total of about 12980 books and periodicals (including loose issues) were circulated by the library. The in-house use of books and periodicals were around 37500. About 85 inter-Library loan transactions were registered

The membership includes ISI Staff, Research Scholars, Project Asst., M.Stat. Students, M.Tech. Students, SDP fellows, DRTC students, Trainees of DRTC short term courses etc.

Inter Library Loan Serivce

Inter library loan facilities were availed by the Indian Statistical Institute, Bangalore Centre, and extended these facilities to other libraries.

Reprographic Service

Library provided 135000 xerox copies to the users during the period April 1997 to March 1998

Documentation Service

The following publications were brought out regularly from the library :

(i) Bimonthly addition list of books, (ii) Monthly list of current periodicals, (iii) Current contents of journals, (iv) Periodicals holding list.

Computer & Statistical Services Centre

CSSC has augmented the INTERNET facility of the institute this year. An 128 KBPS link has been established between ISI and VSNL.

This year CSSC has procured new state-of-the-art servers from SUN system, Digital and IBM. The installation of these servers, and campus-wide networking are in progress.

Projects Undertaken

Development of *ISI Homepage*

Persons involved : Dr. Aditya Bagchi & Sri Subhamoy Maitra, and Dr. Debasis Sengupta (ASU)

Development of *Multimedia Tools as Teaching Aid*

Persons involved : Sri Subhamoy Maitra, and Dr. Debasis Sengupta (ASU).

Social Network (SURDAC funded)

Persons involved : Dr. Aditya Bagchi; Project Leaders : Prof. A.R. Rao (Stat-Math.) & Prof. S. Bandhyopadhyay (SRU).

Appendix A

Inplant Training Programs Conducted since April 1997

Sl.No.	Programme Title	Date	Participants	
			Level	No
1	Statistical Quality Control	21-25 April 1997	Middle Management	25
2	SQC Techniques	5-7 Jan. 1998	Middle Management	25
3	Quality Management	18-23 Aug. 1998	Engineers	43
4	Modern SPC	22-24 Oct. 1997	Junior Executives	15
5	Quality by design and Process Control	14 Novem. 1997	Junior & Senior Management	3
6	SPC	19-20 Nov. 1997	Middle Management	13
7	Awareness Programme on Statistical Techniques for QS 9000	23 Dec. 1997 & 8 Jan. 98	Senior Management	24
8	Statistical Techniques for Quality Control & Improvement (3 months Intensive Programme)	17 Feb. 98 onwards	Junior Management	27
9	New 7 tools of QC	14-15 May 1997	Middle Management	35

10	Design of Experiments for Process & Product Improvement	20-24 Jan. 1998	Middle Management	22
11	Contiguous Improvement for Product Planning & Manufacturing	22-23 July 1997	Middle Management	30
12	Continuous Improvement for Managing Quality	24 July 1997	Executives	20
13	Continuous Improvement in Procurement Process	18 Nov. 1997	Middle Management	20
14	TQM for Continuous Improvement	17 Dec. 1997	Middle Management	25
15	Continuous Improvement for Managing Quality	18 Dec. 1997	Executives	22
16	SPC Programme for Operators (Telegu)	3 Oct. 1997 & 4 Oct. 1997	Operators	35
17	SPC Programme for Operators (Telegu)	20-21 Jan. 1998	Operators	25
18	SPC Programme for Operators (Telegu)	9 & 17 Feb. 1998	Operators	25
19	SPC	3 days	Middle Management	15
20	SPC Module 1 - (First Batch)	4 & 5 Nov. 1997	Middle Management	24
21	SPC Module 1 - (Second Batch)	4 & 5 Dec. 1997	Middle Management	20
22	SPC Module 1 - (Third Batch)	12 & 13 Jan.1998	Middle Management	25
23	SPC	17 Feb. 1998	R & D Personnel	5
24	FMECA	5 & 18 Mar. 1998	R & D Personnel	5
25	Demerit Rating	8 April 1998	R & D Personnel	5
26	Statistical Inference	8 May 1998	R & D Personnel	5
27	Taguchi Methods	19 March 1998	Executives	10
28	SPC Training	August 1997	Middle Management	30
29	FMEA	May 1997	Middle Management	25
30	SPC	14 May 1997 & 13 June 1997	Operators	50
31	SPC	29 July 1997	Top Management	20
32	Appreciation Programme for Management Staff	1 Day	Management	15
33	Statistical Methods for Quality & Reliability	4 days	Middle Management	22
34	Decision Making & Design of Experiments	4 days	Middle Management	22
35	Refresher Programme for SPC for QS 9000	2 days	Middle Management	10
36	SPC	3 days	Middle Management	21
37	Fundamentals of Statistics	3 days	Middle Management	23
38	SPC	3 days	Middle Management	26
39	Statistical Techniques	26-28 May 1997	Middle & Senior Management	15
40	Statistical Techniques	18-20 June 1997	Middle & Senior Management	12
41	Quality Engineering	23, 24 & 27 June 1997	Senior Management	10

42	Quality Management	18-23 Aug. 1997	Fresh Engineers	43
43	Statistical Techniques	25-27 Aug. 1997	Middle & Senior Management	8
44	SPC	8-10 Sep. 1997	Middle & Senior Management	22
45	SPC	17-19 Nov. 1997	Middle Management	21
46	Awareness Programme on ISO 9000 & 5S	5-6 Dec. 1997	Middle & Senior Management	7
47	Awareness Programme on ISO 9000 & 5S	7-8 Dec. 1997	Middle & Senior Management	9
48	Basic of Breakthrough and Control	9-10 Dec. 1997	Middle & Senior Management	30
49	Basic of Breakthrough and Control	18-19 Dec. 1997	Middle & Senior Management	25
50	SPC	14-17 May 1997	Middle Management	30
51	SPC	26-29 May 1997	Middle Management	25
52	SPC	23-24 June 1997	Middle Management	25
53	SPC	9-10 July 1997	Middle Management	25
54	SPC	8, 9, & 15, 16 Sep. 1997	Middle Management	25
55	SPC	5-6 Jan. 1998	Middle Management	20
56	Statistical Techniques for ISO 9000	28-29 Nov. 1997	Middle Management	20
57	Statistical Techniques for ISO 9000	14-16 March 1998	Middle Management	20
58	Hurdles in Implementation of Statistical Techniques for ISO 9000	16 March 1998	Top Executive	25
59	Awareness Programme on QS 9000 (2 Programs)	1, 2 & 7, 9 April 1997	Middle Management	60
61	Intensive Programme on QS 9000 for Core Group	21-22 April 1997	Middle Management	20
62	Training Programme on SPC/FMEA (2 Programs)	24, 25 April & 8-9 May 1997	Middle Management	40
64	Training Programme on Measurement System Analysis	12 May 1997	Middle Management	10
65	Awareness Programme on QS 9000 (2 Programs)	15 Nov. 1997 & 6 Dec. 1997	Operators	70
67	Orientation Programme on QS 9000	21-22 Feb. 1998	Middle Management	35
68	Training Programme on Process FMEA	23 Feb. 1998	Middle Management	10
69	Training Programme on Concept of Variation	12 July 1997	Middle Management	10
70	ISO 9000 Requirements	2 March 1998	Middle Management	10
71	Training Programme on SPC/FMEA	12-14 March 1998	Middle Management	10
72	Training Programme on Production	14 May 1997	Middle Management	10
73	Training Programme on SPC/FMEA	16, 17 May 1997	Middle Management	10
74	Training Programme on Measurement System Analysis	22 May 1997	Middle Management	10

75	QS 9000 Requisition for Vendors (2 Programs)	26 Nov. 1997 & 21 Dec. 1997	Middle Management	50
77	Programme on Quality Cost	1 Day	Middle Management	12
78	New 7 Tools of Quality	1 Day	Middle Management	10
79	Programme on Benchmarking	1 Day	Middle Management	11
80	Programme on Internal Quality Audit	2 Days	Middle Management	12
81	Programme on SPC	2 Days	Middle Management	15
82	Programme on DOE	2 Days	Middle Management	11
83	Programme on QFD	1 Day	Middle Management	14
84	7 QC Tools	1 Day	Administrative Staff	14
85	Design of FMEA	1 Day	Middle Management	8
86	R & R Study and Acceptance Sampling	2 Days	Middle Management	15
87	SPC	19-20 June 1997	Middle Management	15
88	Statistical Techniques	16-17 April 1997	Supervisors	15
89	TQM & ISO 9000 (4 Programs)	22-25 April 1997 28-31 May 1997 24-28 June 1997 22-25 July 1997	Officers	320
93	Vendor Development	14 Aug 1997	Officers	18
94	Training Programme on Statistics	21-23 May 1997	Engineers & Executives	20
95	SPC	4-6 June 1997	Executives	18
96	Statistics in Engg. & Design (2 Programs)	2-4 July 1997 21-23 Jan. 1998	Middle Management	30
98	Advanced Statistical Techniques	19-20 Aug. 1997	Middle Management	18
99	Awareness Programme on SPC	17 May 1997	Executives	40
100	Quality Evaluation & Improvement	22-6 Sep. 1997	Management Trainees	25
101	Quality in Design and Engg.	8-27 June 1997	Middle Management	25
102	Quality in Manufacturing & Transactional Processes	18-20 March 1998	Middle Management	25
103	Basic Quality Management and TQM Concepts	1 July 1997	Middle Management	25
104	Simple QC Tools	1 Sep. 1997	Middle Management	25
105	SPC	27 Sep. 1997	Middle Management	26
106	SPC (3 Programs)	22, 23 April 1997 30 April & 2 May 1997 7-8 May 1997	Middle Management	59
109	SPC (2 Programs)	11 Nov. 1997 25 Nov. 1997	Middle Management	29
111	Robust Engg. (2 Programs)	4-6 Aug. 1997 13-14 Feb. 1998	Middle Management	37
113	7 QC Tools	30-31 Oct. 1997	Middle Management	13
114	SPC/SQC	28-29 Jan. 1998	Middle Management	30
115	DOE/ & Robust Engg.	6-8 Oct. 1997	Middle Management	25
116	SPC	9 April 1997	Middle Management	30

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Sl. No.	Program Title	Dates	Place	Level	Participants Numbers
117	QS 9000 (2 Programs)	22-24 Jan. 1997 6-8 Oct. 1997		Middle Management	60
119	Awareness Program on QS 9000	3 Aug. 1997		Middle Management	30
120	Internal Quality Audit	3-4 Pct. 1997		Middle Management	30
121	Continuous Improvement Techniques	4 Jan. 1998		Middle Management	45
122	Internal Quality Audit	14 Dec. 1997		Middle Management	35
123	Business Statistics	20-22 Jan. 1998		Middle Management	35
124	QFD	16 Oct. 1997		Middle Management	25
125	Program on Discovery of Problems in Transactional Processes	1 Day		Middle Management	10

General Training Programs Conducted during April 1997 - March 1998

Sl. No.	Program Title	Dates	Place	Level	Participants Numbers
1	Statistical Techniques for Quality Management	13-14 May '97	Coimbatore	Middle Management	8
2	Quality Cost	16 May 1997	Coimbatore	Middle Management	9
3	Seminar on Quality Vision 2000	19-20 Nov.'97	Coimbatore	Senior Level Executives	51
4	Quality Vision 2000 - A Challenge to Management	30 Dec. 1997	Coimbatore	Top Management	17
5	Customer Focused QMS - Why? (For Garment Industry)	18 March 1998	Tirupur	Executives	83
6	Workshop on Internal Quality Audit	15-17 April 1997	Mumbai	Middle Management	5
7	Management of Quality Cost - Evaluation Control and Reduction	9 May 1997	Mumbai	Middle Management	6
8	Statistical Methods in Reliability Engineering	19-20 June 1997	Mumbai	Middle Management	5
9	Workshop on "Implementation of ISO 9000 Quality Systems"	30-31 July 1997	Mumbai	Middle Management	13
10	Workshop on "Statistical Process Control"	10-23 Aug. 1997	Mumbai	Middle Management	3
11	Quality Cost	21 Nov. 1997	Mumbai	Middle Management	2
12	Measurement Systems Analysis	11-12 Dec. 1997	Mumbai	Middle Management	10
13	Statistical Techniques in Maintenance Service	15-16 Jan. 1998	Mumbai	Middle Management	3
14	Acceptance Sampling	14-15 April 1997	Pune	Middle Senior Management	10

15	SPC	21-22 Jan. 1998	Pune	Middle Senior Management	10
16	SPC	8-10 March 1998	Pune	Middle Senior Management	10
17	Quantitative Techniques for Decision Making	3 days	Delhi	Middle Management	25
18	Taguchi Methods for Robust Product & Process Design	3 days	Delhi	Middle Management	13
19	SPC & Taguchi Methods with Computer Applications	3 days	Delhi	Middle Management	6
20	Statistical Techniques for ISO 9000	26-28 Nov. 1997	Delhi	Middle Management	25
21	SPC	22-25 April 1997	Hyderabad	Managers & Executive	9
22	Program on Sampling for Quality Assurance	24-26 July 1997	Hyderabad	Engineers	5
23	Program on Vendor Quality Assurance	23-25 Sep. 1997	Hyderabad	Middle & Senior Management	8
24	Statistical Techniques for ISO 9000	5-7 March 1998	Hyderabad	Middle Management	4
25	Promotional Seminars on Quality Improvement for HRD	6 March 1998	Hyderabad	Middle Management	10
26	Modern SPC	23-25 Sep. 1997	Baroda	Middle Management	5
27	Quality by Taguchi Methods	10-12 Nov. 1997	Baroda	Middle Management	5
28	Forecasting	16-19 Dec. 1997	Baroda	Middle Management	3
29	Statistical Techniques for ISO 9000 & QS 9000	26-29 Feb. 1998	Baroda	Middle Management	13
30	Statistical Techniques for ISO 9000 & QS 9000	19-21 March 1998	Surat	Middle Management	6
31	Robust Engg. Using Taguchi Methods	8-11 July 1997	Bangalore	Top & Middle Management	48
32	Robust Engg. Using Taguchi Methods (Executive briefing Seminars)	14 July 1997	Bangalore	Technical & Top Management	20

APPENDIX B

A Partial list of factories served under the consultancy programme during 1997-98

Raja Palayam Mills (Raja Palayam); Gnanmbikai Miller (Coimbatore); Thambbi Modern Spinning Mills (Salem); Sudarsanam Spinning Mills (Raja Palayam); Sri Vishnu Shankar Mills (Raja Palayam); Sambandam Spinning Mills (Salem); Sunrise Jewellers (Madras); Rajnarayan Textile Mills; Technova Imaging Systems Ltd. (Bombay); Tata SSL Ltd.; Coates of India Ltd.; Gabriel India Ltd. (Nasik); Asian Paints (India) Ltd.; Eicher Motors Ltd. (Indore); Apidor Abrasiers Pvt. Ltd.. (Pune); DGP Hinoday Industries Ltd. (Pune); Auto Comp. Corporation (Pune); Clariant (India) Ltd. (Thane); Jeju Plast Ltd. (Tejuri); Kinetic Engg. Ltd. (Ahmednagar & Pune); Panse Auto Comp Pvt. Ltd. (Pune); Paranjape Auto Cast Pvt. Ltd. (Pune);

Paranjape Metal Shapes Pvt. Ltd. (Shirwal); JET Ltd. (Hosiarpur); Samtel India (Bhiwadi); Int. Electron Devices Ltd.; GAPP Industries Ltd.; Eicher Tractors Engg.; Whirlpool (I) Ltd.; Ester Indo Ltd., Samtel Electron Devices; Eicher Motors Ltd.; Cosmo Ferrites Ltd.; BHEL, Power Sector, Southern Region & Project Engg. Mgt. (Delhi); Engine Valves Ltd. (Chennai). Whirlpool India Ltd. (Pandicherry); Heavy Alloy Penetration Project, Ordance Factory (Trichy); The KCP Ltd. (Macherla); Indo National Ltd (Nellore and Tada); Enfield India Ltd. (Ennore); Integral Coach Factory (Chennai); Royal Enfield Motors (Chennai); ITC Ltd. (Printing & Packaging) (Chennai); Dupont (Madurai); ECIL (Hyderabad); FGP (Thimopur); Anna Purna Electronic Pvt. Ltd. (Hyderabad). Engine Valves Ltd. (Hyderabad); Wipro Consumer Products Ltd. (Ahmed Nagar); BANCO Products India, Ltd. (Baroda); CG Glass Ltd (Baroda); Operations Research Group, (Baroda); IFB Industries Ltd. (Bangalore); Fastener Pvt Ltd.; IFB Autoliv Ltd. (Bangalore); RHW India Ltd. (Bangalore); HAL (Bangalore); MICO (Bangalore). Thunga Bhadra Steel Products Ltd. (Hosspet); ABB (Bangalore); KEC (Tumkur); INDAL (Nangangud). INDAL (Belgaum); WIPRO Fluid Power Ltd.; Aspect Development India Pvt. Ltd.; Gabriel India Ltd. (Bangalore); Titan Valves Ltd. (Mysore); Spicer India Ltd., Stumpp Schuele & Somappa Ltd (Bangalore); J.K. Tyres Ltd.; KEC (Bangalore); WIPRO - IT Support Division; TAFE; Wipro Fluid Power; Hewlett Packard (Bangalore).

3. EXTERNALLY FUNDED PROJECTS

A. Ongoing Projects

1. Name of the Project : Development of Statistical Technical Technique as an Aid to Geological Mapping
   Name of the Principal Investigator : J.K. Ghosh
   Name of the Project Co-ordinator : Tapas Samanta
   Unit involved : Stat-Math, Applied Statistics
   Funded by : Council of Scientific and Industrial Research , New Delhi

2. Name of the Project : Tracer Study of ITI Graduates
   Name of the Project Leader : Bimal Kumar Roy
   Unit involved : Applied Statistics
   Funded by : Directorate General of Employment and Training, Ministry of Labour, Govt. of India

3. Name of the Project : Software Development for Cryptanalysis
   Name of the Project Leader : Bimal Kumar Roy
   Unit involved : Applied Statistics
   Funded by : Defence Research and Development Organization, New Delhi

4. Name of the Project : Bilingual (Bangla & Devnagari), OCR System Development
   Project Leaders : B.B. Chaudhuri and S.K. Parui
   Unit involved : Computer Vision and Pattern Recognition Unit
   Funded by : Department of Science and Technology , New Delhi

5. Name of the Project : Development of a Spell Checker and Morphological Processor in an Indian Language with Speech Output for the Blind
   Project Leaders : B.B. Chaudhuri, P. Sengupta and U. Pal
   Unit involved : Computer Vision and Pattern Recognition Unit
   Funded by : Department of Electronics , New Delhi

6. Name of the Project : Development of CAD tools for identification of logical equivalence of library elements and identification of false paths in a switch-level network
   Name of the Project Co-ordinators : B.B. Bhattacharya and P. Palchaudhuri
   Unit involved : Advanced Computing and Microelectronics Unit
   Funded by : Motorola India Electronics Ltd., Bangalore

7. Name of the Project : A Knowledge Based Framework for Diagnosis and Therapeutic Planning Using Multimodality Medical Imaging
   Name of the Principal Investigator : D. Dutta Majumder
   Name of the Co-Principal Investigators : Jyotirmay Das and P. Raghunathan
   Unit involved : Electronic and Communication Sciences
   Funded by : Department of Science and Technology, New Delhi

8. Name of the Project : Application of Fractal and Multifractal Technique in the Processing of Atmospheric Data Images
   Name of the Principal Investigator : Jyotirmay Das
   Name of the Co-Principal Investigator : Arun K. De and Dipti Prasad Mukherjee
   Unit involved : Electronic and Communication Sciences
   Funded by : Department of Science and Technology, New Delhi

9. Name of Project : Cancer Management in Soft Computing Paradigm
   Name of the Chief Investigator : S.K. Pal
   Unit involved : Machine Intelligence
   Funded by : Council of Scientific and Industrial Research , New Delhi

10. Name of the Project : Development of Methodologies for Self-organizing Fuzzy Logic Controllers with Special Emphasis on Neuro-Fuzzy Techniques, Genetic Algorithms and Stability Analysis
Name of the Chief Investigator : N.R. Pal
Unit involved : Machine Intelligence
Funded by : Department of Science and Technology, Govt. of India

11. Name of the Project : Development of a Real-Time Intelligent Decision Making System for Range-safety
Name of the Chief Investigator : N.R Pal
Unit involved : Machine Intelligence
Funded by : Interim Test Range, Chandipur, Defence Research Development Organization, Govt. of India

12. Name of the Project : Khagen Babu-II
Name of the Project Co-ordinator : S. K. Pal
Unit involved : Machine Intelligence
Funding Agency : ISI - Birla Industrial and Technological Museum, Calcutta

13. Name of Project : Structural and Petrological Constraints on the Evolution of Granulite - Greenstone Contact around Paikmal, Orissa
Name of the Project Leader : Samarendra Bhattacharya
Unit involved : Geological Studies
Funded by : Department of Science and Technology, Government of India, New Delhi

14. Name of the Project : Unsteady Surface Water Waves in Ocean
Name of the Project Leader : B.N. Mandal
Unit involved : Physics & Applied Mathematics
Funded by : University Grants Commission , New Delhi

15. Name of the Project : Large Amplitude Ion and Electron Acoustic Waves in Relativistic Plasma
Name of the Project Leader : Rajkumar Roy Choudhury
Unit involved : Physics & Applied Mathematics Unit
Funded by : Department of Science and Technology , New Delhi

16. Name of the Project : Topological Intvestigations of Quantum Field Theory and Statistical Mechanics
Name of the Project Leader : P. Bandyopadhyay (Emeritus Scientist. C.S.I.R.)
Unit involved : Physics & Applied Mathematics
Funded by : Council of Scientific and Industrial Research, New Delhi

17. Name of the Project : Development of thin Film on a Rotating Disk
Name of the Project Leader : B.S. Dandapat
Unit involved : Physics & Applied Mathematics
Funded by : Council of Scientific and Industrial Research, New Delhi

18. Name of the Project : Sustainable Livelihood studies under environmental stress in Eastern plateau of India
Name of the Project Investigator : D.K. Bagchi
Unit involved : Agricultural Science Unit and University of East Anglia, U.K.
Funded by : University of East Anglia, U.K.

19. Name of the Project : Studies on sustainability criteria of Rice Based Cropping System in (rainfed regions of) Eastern states of Indian Plateau
Name of the Project Investigator : D.K. Bagchi
Unit involved : Agricultural Science Unit, Philippines
Funded by : International Rice Research Institute , Philippines

20. Name of the Project : Genomic Diversity in Indian populations, Investigations through bio-technological tools in Eastern Indian population
Name of the Project Leader : P.P. Majumdar
Unit involved : Anthropology and Human Genetics
Funded by : Ministry of Science and Technology, DBT

21. Name of the Project : Estimation of infant and maternal mortality rates and identification of their determinants in rural North 24 Parganas. West Bengal
Name of the Project Investigator : P Bharati
Unit involved . Anthropology and Human Genetics
Funded by . United Nations International Children Educational Fund

22. Name of the Project : Molecular Epistasis and the Human Globin Gene Clusters with Special Reference to Haemoglobinopathies in Eastern India
Name of the Project Investigator : P.P Majumder
Unit involved : Anthropology and Human Genetics
Funded by : Dept. of Biotechnology, Govt. of India

23. Name of the Project · Genomic Diversity in Indian Populations Project
Name of the Project Investigator : P.P Majumder
Unit involved : Anthropology and Human Genetics
Funded by : Dept. of Biotechnology, Govt. of India

24. Name of the Project . Chemical Communication of the Big Cats-Tiger, Leopard and Cheetah
Name of the Project Leader M. Poddar-Sarkar
Unit involved · Biochemistry
Funded by . Council of Scientific and Industrial Research , New Delhi

25. Name of the Project Environmental Management Capacity Building Technical Assistance Project - Environmental Economics Component
Name of the Principal Investigator Robin Mukherjee
Name of the Co-Principal Investigator · Dipankar Coondoo
Unit involved : Economic Research
Funded by : World Bank (Implemented by Ministry of Enviroment and Forest). Govt. of India

26. Name of the Project Survey of the possibilities and problems of small industries in Birbhum district
Name of the Project Leader : Atis Dasgupta
Name of the Co-ordinator : Snigdha Chakrabarti
Units involved · Economic Research and Sociological Research
Funded by : West Bengal Small Industries Corporation

27. Name of the Project · Impact of Economic Reforms on the Productivity of firms
Name of the Investigator : Sanghamitra Das
Unit involved · Planning Unit
Funded by : Planning and Policy Research Unit

28 Name of the Project . CMI Database and Productivity of firms in the Indian Industry
Name of the Investigator . Sanghamitra Das
Unit involved . Planning Unit
Funded by : Planning and Policy Research Unit

29. Name of the Project : Does Environmental Regulations promote Growth?
Name of the Investigator S. Gangopadhyay
Unit involved . Planning Unit
Funded by · Planning and Policy Research Unit

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30. Name of the Project : Agricultural Trade Liberalization and Spatial Development
    Name of the Investigator : B. Ramaswami
    Unit involved : Planning Unit
    Funded by : Planning and Policy Research Unit

31. Name of the Project : Promoting Economic Coperation with ASEAN Countries in Emerging
    Environment
    Name of the Investigator : Atul Sarma
    Unit involved : Planning
    Funded by · Planning and Policy Research Unit

32. Name of the Project : Mid Term Review of Family Welfare (Urban Slum) Project IPP-VII
    Name of the Investigator · B.N. Bhattacharya
    Unit involved : Population Studies
    Funded by : Calcutta Metropolitan Development Authority

33. Name of the Project : Health Sector Reforms · An Evaluation of Impact and Patterns of Utilisation
    Among Vulnerable Groups in Three Indian States (Andhra Pradesh. Tamil Nadu and West Bengal
    Name of the Investigator : B.N. Bhattacharya
    Unit involved : Population Studies
    Funded by . European Commission

34. Name of the Project : Gender Study for the District Primary Education Programme
    Name of the Project Leader : Anjali Ghosh
    Unit involved : Psychology Research & Sociological Research Unit
    Funded by : Paschim Banga Rajya Prathamik Skisha Unnyan Sanstha, Govt. of West Bengal

35. Name of the Project : Mid-term Review of Family Welfare (Urban Slums) Project IPP-8. Calcutta
    Name of the Project Leader : Biswanath Bhattacharya
    Unit involved : Psychology Research . Population Studies and Economic Research
    Funded by : Calcutta Metropolitan Development Authority

36. Name of the Project : Selection Test for the Admission of Students to the B.Lib. (Sc.) course for the
    Calcutta University
    Name of the Project Leader : S.N. Banerjee
    Unit involved : Psychology Research
    Funded by : University of Calcutta

37. Name of the Project : Selection Test for the Admission of Students to the B.lib and Information
    Science course for the Rabindra Bharati University
    Name of the Project Leader : S.N. Banerjee
    Unit involved : Psychology Research
    Funded by : Rabindra Bharati University, Calcutta

38. Name of the Project : Evaluation of Rainfed Farming Project (RFP)
    Name of the Project Co-ordinator : Dr. Atis Dasgupta
    Unit involved : Sociological Research   Population Studies   Psychology Research. Agricultural
    Science
    Funded by : Hindustan Fertilizer Corpn. Ltd.

39. Name of the Project . Evaluation of base-line study on District Primary Education Planning (DPEP) in
    five districts of West Bengal.
    Name of the Project Coordinator : Atis Dasgupta, Anjali Ghosh and Suraj Bandyopadhyay
    Unit involved : Sociological Research and Psychometry Research
    Funded by : Paschim Banga Rajya Prathamik Shiksha Unnyan Sanstha, Govt. of West Bengal.

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40. Name of the Project : Gender Study of District Primary Education Programme (DPEP)
    Name of the Project Co-ordinator   Anjali Ghosh. Atis Dasgupta and Suraj Bandyopadhyay
    Unit involved . Sociological Research and Psychometry Research
    Funded by . Paschim Banga Rajya Prathamik Shiksha Unnyan Sanstha, Govt. of West Bengal.

41. Name of the Project : Guidance and consultancy services in data-processing
    Name of the Project Co-ordinator   Prafulla Chakrabarti
    Unit involved : Sociological Research
    Funded by : Indian Council of Social Science Research, New Delhi

42. Name of the Project : TLC project in Purulia District of West Bengal
    Name of the Project Co-ordinator : Atis Dasgupta
    Unit involved : Sociological Research
    Funded by : Government of West Bengal

43. Name of the Project Change in livelihood trajectories
    Name of the Project Co-ordinators . D.K. Bagchi and Ajay Kr. Ghosh
    Unit involved . Agricultural Science Unit and Sociological Research Unit
    Funded by University of East Anglia, U.K.

44. Name of the Project : Concurrent evaluation of on-going literacy programme in the district of Daskhin
    Dinajpur
    Name of the Project Co-ordinator Atis Dasgupta
    Unit Involved : Sociological Research
    Funded by . Government of West Bengal

45. Name of the Project Evaluation of continuing education in the district of South 24-Parganas
    Name of the Project Co-ordinator Atis Dasgupta
    Unit involved Sociological Research and Psychology Research
    Funded by . Government of West Bengal

46. Name of the Project : Manpower Development Programme in the area of Computer Applications to
    Library and Information Field
    Name of the Project Coordinator . I.K. Ravichandra Rao
    Unit involved . DRTC, Bangalore
    Funded by : National Information Systems for Science and Technology, New Delhi

47. Name of the Project Measurement of customers' perception in the purchase of music cassettes
    Name of the Project Coordinator : D.T. Ghosh
    Unit involved : SQC & OR
    Funded by : Gramophone Company of India

B. Completed Projects

1. Name of the Project : Baysian Non-parametric Inference and Computer
   Name of the principal investigator : Mohan Delampady
   Unit involved . Stat-Math., Bangalore
   Funded by : Council of Scientific and Industrial Research, New Delhi

2. Name of the Project . Studies of the PBL dynamics using sodar and tower data and to predict a scalar
   transport model for the monsoon period.
   Name of the Principal Investigator : Jyotirmay Das
   Name of the Co-principal Investigator : Arun K. De
   Unit involved Electronics and Communication Sciences
   Funded by : Department of Science and Technology, New Delhi

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3.   Name of the Project : Development of Computer algorithm for recognition and interpretation of sodar patterns
      Name of the Principal Investigator : Jyotirmay Das
      Name of the Co-principal Investigator : Arun K. De and Dipti Prasad Mukherjee
      Unit involved : Electronics and Communication Sciences
      Funded by : Department of Science and Technology, New Delhi

4.   Name of the Project : A neuro-fuzzy image recognition system : Methodology development for forensic applications
      Name of the Chief Investigator : S.K. Pal
      Unit involved : Machine Intelligence
      Funded by :Council of Scientific and Industrial Research, New Delhi

5.   Name of the Project : A study of mathematical techniques in water wave problems
      Name of the Project Investigator : B.N. Mandal
      Unit involved : Physics and Applied Mathematics
      Funded by : Council of Scientific and Industrial Research, New Delhi

6.   Name of the Project : Gender Bias in India
      Name of the Project Investigator : Bhaskar Dutta
      Unit involved : Planning Unit, Delhi
      Funded by : Planning and Policy Research Unit

7.   Name of the Project : Inter-Regional Disparities in Growth
      Name of the Project Investigator : Dipankar Dasgupta
      Unit involved : Planning Unit, Delhi
      Funded by : Planning and Policy Research Unit

8.   Name of the Project : In-depth studies on the levels of development of scheduled castes and schedules tribes.
      Name of the Project Co-ordinator : Atis Dasgupta
      Unit involved : Sociological Research
      Funded by : Ministry of Welfare, Government of India

9.   Name of the Project : Total Literacy Campaign (TLC)
      Name of the Project Co-ordinator : Atis Dasgupta
      Unit involved : Sociological Research
      Funded by : Calcutta Minicipal Corporation

10.   Name of the Project : National Mapping of Science using COMPENDEX database
      Name of the Project Leader : I K. Ravichandra Rao
      Unit involved : DRTC, Bangalore
      Funded by : National Information Systems for Science and Technology, New Delhi

5. SYMPOSIA, CONFERENCES, WORKSHOPS, LECTURES AND SEMINARS ORGANISED

Symposia, Conferences, Workshop

To-day conference on "Recent Advances in Statistics and Probability" was organised jointly by Stat. Math. Unit, Calcutta and the Bernouli Society for Mathematical Statistics and Probability, during December 29, 1997 to January 1, 1998, at ISI, Calcutta.

Winter School on "Statistical Methods in Social Sciences" was organised by Stat. Math. Unit, Calcutta, during October 20, 1997 to November 08, 1997, at ISI, Calcutta.

An International Conference on "Computational Linguistics, Speech and Document Processing" (ICCLSDP-98) was organized by Computer Vision and Pattern Recognition Unit, Calcutta, during February 18-20, 1998, at ISI, Calcutta.

International Workshop on "Soft Computing and Intelligent Systems", was organised by Machine Intelligence Unit, Calcutta, during January 12-13, 1998, at ISI, Calcutta.

Winter School on "Human Genetics : Concepts, Paradigms and Methods" was organised by Anthropology and Human Genetics unit, Calcutta, during January 10-30, 1998 at the Indian Institute of Chemical Biology, Calcutta.

Conference on "Recent Advances in Quantitative Methods with Applications to Indian Economic Studies" was organised by Economic Analysis Unit, Bangalore, during March 9-10, 1998, at ISI, Bangalore.

1st National Symposium on "The Methods in Quantitative Linguistics" was organised by Linguistic Research Unit, Calcutta, during March 3-4, 1998, at ISI, Calcutta.

Workshop on "Practical Orientation to Internet", was organised by DRTC, Bangalore, during January 28-30, 1998, at ISI, Bangalore.

Workshop on "Informetrics and Scientometrics" was organised by DRTC, Bangalore, during March 16-19, 1998, at ISI, Bangalore.

Lectures and Seminars

Lectures/Seminars organised bed by the Institute and delivered by visiting scientists are listed below :

Theoretical Statistics and Mathematics Division

Calcutta Unit

Averous, Jean., Laboratory for Statistics and Probability, Paul Sabatier University, Toulouse, France (2.3.98 and 9.3.98) : Multivariate Dispersion and Skewness for Multivariate Distributions.

Baidya, A.M., Department of Mathematics, Gujrat University (26.5.1997) : Densities of Integer Sequences.

Bhatia, R., ISI Delhi Centre (12.6.97 and 31.7.97) : The Equation AX-XB=Y and Extension of the Powers-Stormer Inequality.

Bhattacharya, P., Dean of Academic Affairs. Department of Maths, IIT, Guwahati (4.6.1997) : On Julia Sets.

Bhaumik, Dulal K., University of Southern Alabama, Mobile (25.9.97- 26.9.97) : Combining Independent Studies in a Calibration Problem.

Biswas, Dr. Jishnu., School of Mathematics, Tata Institute of Fundamental Research (20.3.98) : Theorem for Singular Projective Varieties.

Borkar, V., Indian Institute of Sciences, Bangalore (8.1.98) : Stability and Convergence of Stochastic Approximation.

Burma, D.P., Molecular Biology Unit, Institute of Medical Sciences, Banaras Hindu University (22.9.97) : Phylogenetic Analysis in Evolutionary Studies at Molecular Level : Why Statistical Approach?

Chatterjee, Kashinath., Asutosh College, Calcutta (11.11.97) : Search Designs and Their Applications.

Das Adhikar, Sumakar., Mehta Research Institute (MRI), Allahabad (29.1.98) : Some Elementary Methods in Answering Some Questions of Number Theoretic Nature.

Das, M.N., Ex-Director, IASRI, New Delhi (15.11.97) : Vedic Mathematics and its Modern Use.

Dutta, Basudeb, Department of Mathematics, IISC, Bangalore (23.5.97) : A Perimeter Maximizing Problem.

Hampel, Frank., Swiss Federal Institute of Technology (ETH), Zurich (5.1.98) : A New Frequentist Approach to the Foundations of Statistics : Part - I.

Hampel, Frank., Swiss Federal Institute of Technology (ETH), Zurich (6.1.98 - 7.1.98) : A New Frequentist Approach to the Foundations of Statistics : Part - II and Part III.

Katona, G.Y., Hungarian Academy of Science (23.6.97) : Hamiltonian Cycles and Toughness.

Lodaya, Kamal., The Institute of Mathematical Sciences, Chennai (28.8.97) : Finite Automata, Format Logic and Circuit Complexity.

Maitra, Ranjan., Statistics & Data Minining Research Group, Bellcore (7.7.97) : Synthetic Resampling Methods for Variance Estimation in Parametric Images.

Mukherjee, Arunava., Department of Mathematics, University of South Florida, Tampa, USA (16.1.98) . Convolution Powers of Probabilities on Space of Matrices.

Nandy, Rajesh Ranjan., Dept of Mathematics, University of Washington, Seattle, U.S.A. (24.9.97) : Efficient Markovian Couplings.

Pal, Nabendu, University of Southwestern Lousiana, U.S.A. (23.6.97 and 14.7.97) : Estimation of the Maximum & Minimum of Two Normal Means and Do the Good Variance Estimators make Better Mean Estimators?

Pradeep, C.R., School of Mathematics, Tata Institute of Fundamental Research (3.11.97) : On a Class of Open Algebraic Surfaces.

Sen, Malay., Department of Mathematics, University of North Bengal (23.3.98) : Interval Digraphs.

Sen, Sandeep., Dept. of C.Sc. and Engineering, IIT, Delhi (24.12.97) : Randomised Parallel Algorithms in Computational Geometry.

Seshadri, C.S. F.R.S., Director, SPIC Mathematical Institute, Chennai (10.9.97) : Moduli of Vector Bundles

Seth, Anit., Institute of Mathematical Sciences, Chennai (22-12..1997-23.12.1997) : Limitations of Capturing Complexity Classes using Generalized Quantifiers and Mccolm's Conjectures.

Sinha, K.B., ISI Delhi Centre & Department of Mathematics, Jawaharlal Nehru University (9.6.1997 and 24.3.1998) : Differentiation of Operator Functions and Derivatives and Derivations.

Tripathi, Satya Deo., R.D. University, Jabalpore (13.11.1997) : Discrete Groups and Discontinuous Actions.

Delhi Centre

Averous, Jean., (20.3.1998) : Multivariate Dispersion and Skewness.

Bhattacharya, T., (20.10.1997) . On Fusaionh Algebras.

Bhat, B.V. Ramarama., (3.10.1997) : Cocycles of CCR-Flows & The Minimality Problem.

Chari, Manoj., (1.8.1997) : A Topological Approach to a Polynomial Invariant of Graphs and Matroids.

Demuth, M., (13.2.1998) : Stochastics, Spectral Theory & Capacity.

Demuth, M., (20.2.1998) : Analogue of Weyl's Criterion for Absolutely Continuous Spectrum.

Deshpande, J.V., (21.11.1997) : Bounds for Failure Rate of a Series System of Dependent Components.

Deshpande, J.V., (28.11.1997) : Prediction of the Number of Errors in a Software.

Exner, P., (2.7.1997) : Laterally Coupled Waveguides.

Goswami, Debasish., (5.8.1997) : Minimal CP-Semigroup on a Von Neumann Algebra and Application to Markov Process.

Hampel, Frank., (12.11.1997) : A New Frequentist Approach to the Foundations of Statistics I.

Hampel, Frank., (12.11.1997) : A New Frequentist Approach to the Foundations of Statistics I and II.

Hawkins, D.L., (7.1.1998) : Statistical Methods for Ground Water Monitoring.

Jain, S.K., (13.8.1997) : Weak SeInjectivity of Matrix Rings.

Kana, Sangita., (16.6.1997) : Analysis of Dependent Competing Risks Using Bayesian Smoothing.

Kesten, Harry., (5.1.1998) : Percolation of Arbitrary Words in $\{0, 1\}^h$

Mukherjee, Rahul., (17.2.1998) : On a Property of Probability Matching Priors : Matching the Alternative Coverage Probabilities.

Nobel, Andrew B., (28.11.1997) : Prediction of the Number of Errors in a Software

Rao, C.R., (11.2.1998) : Statistical Solutions to Problems in Matrix Algebra.

Vidyasagar, M., (23.1.1998) : An Introduction to Statistical Learning Theory.

Applied Statistics Division

Applied Statistics Unit

Gupta, M.D., Institute for Research In Medical Statistics, Chennai (25.5.1997) : A Simulation Model in Leprosy.

Ray, Siddheswar., School of Computer Science & Software Monash University, Australia (10.2.1998) : Bhattacharyya Coefficient in Image Processing and Pattern Recognition.

Roy, Choudhury Kingshuk., University of Washington, Seattle, USA (23.9.1197) : Constraints in Poisson Deconvolution Problems.

Young, S. Stanley., Claxo Welcome Inc., USA (7.1.1998) : The Discovery of Multiple, Interacting Genes.

Computer & Communication Sciences Division

Computer Vision and Pattern Recognition Unit

Mitra, Mandar., Cornell University, Ithaca, New York (27.1.1998) : Syntactic and Statistical Phrases as Keywords for Indexing Document.

Sarkar, Sudeep., University of South Florida, (22.2.1998) : Object and Background Separation from Map Using Perceptual Organization.

Advanced Computing and Microelectronics Unit

Mukherjee, Amar., Department of Computer Science, University of Central Florida, USA (21.7.97) : An Efficient Algorithm for the Rectangle Intersection Problem with Applications to VLSI Design.

Mukherjee, Amar., Department of Computer Science, University of Central Florida, USA (5.8.97) : Application of VLSI Experience to Mechanical and Electro-Mechanical Manufacturing.

Ray, Sibabrata., University of Michigan, Dearborn, USA (14.7.1997) : Placement of Erasure Nodes in Dual-Bus Network.

Roy, Amitabha., Department of Computer Science, University of Oregon, USA (23.9.97) : Exploiting Symmetry in Combinatorial Search.

Shigeyoshi, Kitazawa., Department of Computer Science, Faculty of Information, Shizuoka University, Japan (9.9.97) . Some Features Extracted from Speech Signals.

Electronics and Communication Sciences Unit

Sarkar, Debashis., Network Management Research Group, Lucent Technologies (25.9.97) : SONET : A Future Technology in Today's Network.

Shaw, Robert., Director, Intensional Dynamics Laboratory, University of Connecticut, Storrs, USA (26.12.97) : Space-time Continuum in Physics Biology & Psychology.

Shaw, Robert , Director, Intensional Dynamics Laboratory, University of Connecticut, Storrs, USA (26.12.97) : Biochemical Gradient and Tensor Analysis of Biological & Psychological Space-time

Machine Intelligence Unit

Bhattacharyya, J., Indian Association for the Cultivation of Sciences, Calcutta (13.1.98) : Chaos in Nonlinear Dynamics and its Applications.

Deb, K., Dept. of Mechanical Engineering, Indian Institute of Technology, Kanpur (12.1.98) : Genetic Algorithms in Search and Optimization : The Technique and Applications.

Gesu, V.D., Dept. of Mathematics, University of Palermo, Italy (12.1.98) : Solving Image Analysis Problems with Fuzzy Sets.

Kitazawa, S., Dept. of Computer Science, Shizuoka University, Japan (9.9.97) : Some Feature Extraction from Speech Signals.

Lobo, F., University de Nova, Lisbon, Portugal (2.3.98) : Linkage Learning Genetic Algorithms.

Nandi, A., Dept. of Electronics & Electrical Engineering, University of Strathclyde, U.K. (9.1.98) : Blind Convolution.

Noguchi, S., President University of Aizu, Japan (13.1.98) : Future Trends in Infomation Communication and its Impact on Society.

Pittman, J.L., Pennsylvania State University, U.S.A., (6.3.98) : Fitting Optimal Piecewise Linear Functions to Noisy Data Using Genetic Algorithms.

Ray, S., Monash University, Australia, (13.2.98) : (i) Colour Image Segmentation, (ii) Minimum Message Length Inference.

Yegnanarayana, B., Indian Institute of Technology, Chennai (12.1.98) : Artificial Neural Networks.

Yegnanarayana, B., Indian Institute of Technology, Chennai (13.1.98) : Boltzmann Machine.

Physics and Earth Sciences Division

Geological Studies Unit

Novas, E. Fernandos., National Museum of Buenos Aires, Argentina (28.11.97) : Dinosaurs from Argentina.

Sampson, Scott., New York College of Osteopathic Medicine, New York, U.S.A. (31.7.97) : Madagascar's Cretaceous Castaways.

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Abbas, K., Institute of Physics, Bhubaneswar (7.7.97) : Dark Matter of Cosmology and Periodic Mass Extination.

Bhattacharyya, P., Department of Electrical Engineering, Texas A & M University, USA (30.11.97) : An Overview of Control Theory.

Chakrabarti, A., Department of Mathematics, Indian Institute of Science, Bangalore (25.2.97 and 26.2.98) : On Galerkin Methods and their Applications to Water Wage Problems, I, II.

Dutta, T.K., Indian Institute of Technology, Kharagpur (24.7.97) : Assemblege of Elements and Solution.

Gesu, de Vito., Department of Mathematics, University of Palermo, Italy (18.2.98) : On Symmetry in Computer Vision.

Majumdar, K., University of Florida, USA (18.12.97) : GMR for Laterally Confined Multilayer.

Mathur, M., S.N. Bose Centre for Basic Sciences, Calcutta (11.2.98) : Magnetic Monopoles in Non-Abelian Gauge Theory : An Abelian Approach.

Mitra, N.K., Institute for Thermo and Fluid Dynamics, Ruhr University, Bochum, Germany (22.1.98) : Numerical Simulation of Complex Laminar and Turbulent Flows.

Muschinski, A., University of Hannover, Germany (22.12.97) : Theory of the First Moments of the Variance and Cross Spectra of Standard and Interferometric Clear-air Doppler-Radar Signal.

Muschinski, A., University of Hannover, Germany (24.12.97 - 30.12.97) : (i) The Roots of the Large Eddy Simulation Technique, (ii) A New Method of Design for PII Controllers.

Roy, T., Saha Institute of Nuclear Physics, Calcutta (21.1..98) : Reconstruction of Data for Chaotic Systems from Noisy Time Series.

Truini, P., University of Geneva, Italy (27.8.97) : Quantum Groups and Their Representations.

Biological Sciences Division

Biometry Unit

Das Sarma, Jayasri., Div. of Neuropathology, Dept. of Pathology and Laboratory of Medicine, University of Pensylvania, U.S.A (13.2.1998) : Molecular Pathogenesis of Coronavirus (Mouse Hepatitis Virus) Induced Demyelination.

Gupta, Phalguni, Professnor of Infectious Diseases & Microbiology, Graduate School of Public Health, Co-Director of the Pittsburg, Pensylvania, U.S.A. (31.1.1997) : Pathogenicity of HIV Infection.

Social Sciences Division

Economic Research Unit

Banerji, Sarmila., Calcutta University (15.5.97) : Health Sector in India : Disparities in Provisioning, Utilization and Achievements.

Chaudhun, Kaushik., National Institute of Public Finance & Policy, New Delhi (8.1.98) : Output Fluctuations in Indian Industry and Agriculture - A Reexamination.

Chaudhuri, Sarbajit., Mrinalini Dutta Mahavidyapith, West Bengal (27.11.97) . A Theory of Interactions Between the Formal and Informal Credit Markets in Backward Agriculture in a Leadership Structure.

Das, P. Satya., Indian Statistical Institute, Delhi (11.9.97) : Trade and Personal Distribution of Wealth and Income : Beyond the Stolper-Samuelson Theorem.

Kumar, T. Krishna., Indian Statistical Institute, Bangalore (11.9.97) : Theoretical Foundations of Time Series Macroeconomics.

Marjit, Sugata., Centre for Studies in Social Sciences, West Bengal (11.12.97) : Devaluation, Under-Invoicing and Fictitious Growth in Exports - A Theoretical and Empirical. Analysis.

Mukherjee, Vivekananda., R.K.M. Residential College Narendrapur, India (15.1.98) : Bribery in a Model of Harrassement with Costly Verification.

Nath, G. Omkar., Centre for Development Studies, Trivandrum (6.11.97) : Wages in the Agrarian Economy.

Poddar, Sougata, CORE, Belgium (12.1.98) : Uncertainty, Entry Deterrence and Excess Capacity.

Ray, Ranjan., University of Tasmania, Australia (5.1.98) : Expenditure Behaviour of Households and Welfare of Children and Widows in Pakistan, South Africa : A Study on Unit Record Data

Sengupta, K. Jati., University of California at Santa Barbara, USA (17.12.97) : New Methods for Measuring Pareto-Efficiency.

Ullah, Aman., University of California at Riverside, USA (2.1.98) , Non-Parametric Panel Data Estimation.

Economic Analysts Unit

Bose, Sanjit, (4.6.97 and 6 ^.1997) : Mathematical Programming ..nd Economic Theory.

Krishnan, Pramita (30.7.1997) : In Sickness and in Health ... Risk Sharing Within Households in Rural Ethiopia.

Library, Documentation and Information Sciences Division

Documentation Research and Training Centre (Bangalore)

Amba, S., (4.3.98, 5.3.98 and 26.3.98) : (i) Performance and Measures, (ii) Patens, (iii) Systems Design, (iv) Evaluation of Factor, (v) Library Economics.

Chaudhuri, A.K., In-Charge, SQC-OR Unit, Bangalore Centre (8.12.97, 11.12.97 and 17.12.97) : ISO 9000 & Quality Management as Applicable to Library and Information Work.

Malwad, N.M., (1.8.97) : Digital Libraries Vis-a-Vis Five Laws of Library Science.

Raghavan, K.S., (12.10.97, 13.10.97, 22.10.97, 23.10.97 and 4.12.97) : Indexing Language Design & Development.

Seetharama, S., (9.3.97 - 13.3.97) : (i) Planning of Information Centres . An Overview, (ii) Library Management, (iii) Manpower Planning, (iv) Information Consolidation and Services.

Srinivasan, Padmini, (1.7.97) : Indexing on Web.

5. PUBLICATIONS

Sankhya

Founded and edited by Professor P.C. Mahalanobis in 1933 Sankhya, the Indian Journal of Statistics and the official organ of the Indian Statistical Institute is now published bi-monthly in two series - Sr. A on Probability and Mathematical Statistics, and Sr. B on Statistical Methodology and Applications including Sample Survey and Quantitative Economics. Since its inception, eminent scholars all over the world have been contributing research articles for publication in Sankhya, one of the most prestigious and internationally renowned journal. Sankhya office takes care of publication of Sankhya (A&B) with the assistance of Publication and Printing Unit.

Journal Committee :

Editors   : Somesh Das Gupta and J.K. Ghosh

Co-Editors : Sankhya A : P.K. Bhattacharya, Sujit Kumar Basu, Arup Bose, Anirban Das Gupta, Mohan Delampady, R.L. Karandikar, Hira L. Koul and Kesar Singh.

Co-Editors : Sankhya B : Dipankar Coondoo, Anup Dewanji, Aloke Dey, S.R. Mohan, T.J. Rao and Bimal K. Sinha.

Managing Editors   Series A : Arup Bose
                        Series B : T.J. Rao.

The following publications are published during April 1997 to March 1998

Sankhya Sr. A : Volume 59, Part 2. and 3
                Volume 60, Part 1
Sankhya Sr. B : Volume 59, Part 1 and 2

6. SCIENTIFIC PAPERS AND PUBLICATIONS

Books Published

Theoretical Statistics and Mathematics Division

Calcutta Unit

Srivastava, S.M. : *A Course on BOREL SETS*, Graduate Texts in Mathematics, 180, Springer, New York.

Bangalore Unit

Thangavelu, S. : *Harmonic Analysis on the Heisenberg Group*, Progress in Math., Birkhauser, Boston, 169, 1998.

Applied Statistics Division

Applied Statistics Unit

Mukhopadhyay, P. : *Theory and Methods of Survey Sampling*, Prentice Hall of India P. Ltd., New Delhi, 483+x, 1998.

Mukhopadhyay, P. : *Small Area Estimation in Survey Sampling*, Narosa Publishing House, New Delhi, 1998.

Mukhopadhyay, P. : *Inferential Problems in Survey Smapling*, Wiley Eastern Ltd., New Delhi, 1998.

Physics and Earth Sciences Division

Physics and Applied Mathematics Unit

Mandal, B.N. and Mandal, Nanigopal : *Integral Expansions Related to Mehler-Fock Type Transforms*, Pitman Research Notes in Mathematics Series, 367, Addison Wesley Longman, London, 131, 1997.

Roy, S. : *Statistical Geometry and Applications to Microphysics and Cosmology* Kluwer Academic Publishers, The Netherlands, 25⊙ January, 1998.

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Maitra, S. and Bagchi, A. : Data mining - recent applications, A brief review on support set generation problem, *International Conference on Statistics and its Applications*, Rajshahi University, Bangladesh, 1998.

PART II. VISITING SCIENTISTS, HONOURS AND AWARDS, SCIENTIFIC TOURS AND ASSIGNMENTS

7. VISITING SCIENTISTS

A number of distinguished scientists from abroad and India participated in the research, training and other scientific activities of the Institute during the year. Some of them came to the Institute on invitation and spent fairly long periods in the Institute to assist in the regular research and teaching programmes, while others came for short periods and gave lectures and seminars. Most of them were available for consultation by the faculty members of the Institute. Names of the Visiting Scientists are indicated below :

1   Abbas, K., Institute of Physics, Bhubaneswar, July 7, 1997, *Physics and Applied Mathematics Unit, Calcutta.*

2.   Acharya, Tinku, Intel Corporation, USA November 1997 - February 1998, *Advanced Computing and Microelectronics Unit, Calcutta.*

3   Aggrawal, S.S., CEERI, New Delhi, July 02, 1997, *Computer Vision and Pattern Recognition Unit, Calcutta.*

4   Amba, S., Asst. Director, Central Leather Research Institute (CLRI), Chennai, March 01 - 31, 1998, *Documentation Research and Training Centre, Bangalore.*

5   Anantharam, V., Dept. of Elec. Engg. & Computer Science, University of California, July 29, 1997, *Stat-Math Unit, Bangalore.*

6.   Arts, Gerda, Sweden, February 1998, *SQC and OR Unit, Delhi.*

7.   Athreya, K.B., Iowa Sate University, Iowa, May 30, 1997 - January 5, 1998, *Stat-Math Unit, Bangalore*

8.   Bandyopadhyay, P., Bisra Agricultural University, Ranchi, April 01- 30, 1997, *Stat-Math Unit, Calcutta.*

9.   Bansal, Ravi, Duke University, USA, July 4 - 9, 1997, *Planning Unit, Delhi.*

10.   Basu, S .K., National Institute of Management, Calcutta, April 1997- March 1998, *Stat-Math Unit, Calcutta.*

11.   Bhatnagar, Gaurav, August 1, 1996 - July 31, 1997, *Stat-Math Unit, Delhi.*

12.   Bhattacharyya, Tirthankar, Institute of Mathematical Sciences, Chennai, January, 02 - 10, 1998, *Stat-Math. Unit, Calcutta.*

13.   Bhattacharyya, Shankar P., Department of Electrical Engineering Texas A & M University, USA, December 30, 1997, *Physics and Applied Mathematics Unit, Calcutta.*

14.   Bhattacharyya, Tirthankar, Matscience, September, 1997, *Stat-Math. Unit, Bangalore.*

15.   Bhaumik, Dulal, University of Alabama, Alabama, September - December, 1997, *Stat-Math Unit, Calcutta.*

16.   Bikhchandani, Sushil, UCLA, USA, August 8, 1997, *Planning Unit, Delhi.*

17. Biswal, J.P.N., Sambal University, July, 1997 - March, 1998, *Stat-Math Unit, Calcutta*

18. Biswas, Indranil, TIFR, April 25, 1997, *Stat-Math Unit, Bangalore*

19. Borker, Vivek, Indian Institute of Sciences, Bangalore, January, 02 - 10, 1998, *Stat-Math Unit Calcutta*

20. Burma, D P., B H University, Banaras, June, 1997 - July, 1997, *Stat Math Unit, Calcutta*

21. Burman, Prabir, University of California, USA, September 9 - December 31, 1997, *Stat- Math Unit, Calcutta.*

22. Chakraborti, A., Department of Mathematics, Indian Institute of Sciences, Bangalore, February 25 - 26, 1998, *Physics and Applied Mathematics Unit, Calcutta*

23. Chakraborty, G., Dept. of Software Engineering, University of Aizu, Japan, January 19-23, 1998, *Machine Intelligence Unit, Calcutta*

24. Chanillo, S., Rutgers University, July 04 - 30, 1997 *Stat-Math Unit, Bangalore*

25. Chatterjee, Kashinath, Asutosh College, Calcutta, October, 1997, *Stat-Math Unit, Calcutta.*

26. Chatterjee, Sankar, 'Horn Professor of Texas Tech University, June - August, 1997, *Geological Studies Unit, Calcutta.*

27. Chaudhuri, Gopal, I.S.I., April 01 - December 31, 1997, *Stat-Math Unit, Calcutta.*

28. Das, Subhabrata, April - June, 1997, *Applied Statistics Unit, Calcutta.*

29. Davis, Mari, Senior Lecturer, School of Information, Library Archive Studies (SILAS), The University of New South Wales, Sydney 2052, Australia, March 14 - 20, 1998, *Documentation Research and Training Centre, Bangalore*

30. Demuth, M., Clausthal Germany, February 10 - 25, 1997, *Stat-Math Unit, Delhi.*

31. Deshpande, J.V., University of Poona, November 19 - December 2, 1997, *Stat-Math Unit Delhi*

32. Dutta, T.K., Indian Institute of Technology, Kharagpur, July 24, 1997, *Physics and Applied Mathematics Unit, Calcutta.*

33. Garimella, Gayatri, ISI, *Stat-Math Unit, Bangalore*

34. Gesu, Vito de, Dept. of Mathematics, University of Palermo, Italy, January 10-25, 1998, *Machine Intelligence Unit, Calcutta*

35. Gesu, Vito de, Department of Mathematics, University of Palermo, Italy, February 18, 1998, *Physics and Applied Mathematics Unit, Calcutta.*

36. Gesu, Vito de, Palermo University, Italy, January 29, 1998, *Computer Vision and Pattern Recognition Unit, Calcutta*

37. Ghosal, Subhashis, I.S.I., March 03 - August 31, 1997, *Stat-Math Unit, Calcutta*

38. Govindan, T.E., Applied Mathematics Division, Dept. of Chemical Technology, University of Bombay, November 7, 1997, *Stat-Math. Unit, Bangalore.*

39. Gupta, Sanjiv K. : ISI, Calcutta, December 23, 1997 - January 1998, *Stat-Math Unit, Bangalore.*

40. Gupta. J.C., ISI, Calcutta, February 25 - March 19, 1998, *Stat-Math Unit, Bangalore.*

41. Gupta, J.C., ISI, Calcutta, March 4 - 18, 1998, *Stat-Math Unit, Bangalore.*

42. Gupta S.K., December 30, 1997, *Stat-Math Unit, Bangalore.*

43. Gustafson, Robert. Texas A and M University, USA, January 5 - 16, 1998, *Stat-Math Unit, Bangalore.*

44. Hampel, Frank, Swiss Fedral Institute of Technology, November 3 - 29, 1997, *Stat-Math Unit, Delhi.*

45. Hampel Frank, Seminar Fur Statistik, ETH, Zurich, January 9 - 15, 1998, *Stat-Math Unit, Bangalore.*

46. Hawkins, D L., University of Texas, January 3 - 9, 1998, *Stat-Math Unit, Delhi.*

47. Helgason, S., Massachusetts Institute of Technology, USA, January 14 -18, 1998, *Stat-Math Unit, Bangalore.*

48. Jain, S.K., Ohio University, July 23 - September 1, 1997, *Stat-Math Unit, Delhi.*

49. Kerman, Ron, Brock University of Canada, December 4 - 14, 1997, *Stat-Math Unit, Bangalore.*

50. Kesten, Harry, Cornell University, December 27 - January 7, 1998, *Stat-Math Unit, Delhi.*

51. Kitazawa, S., Dept. of Computer Science, Shizuoka University, Japan, September 05-10, 1997, *Advanced Computing & Microelectronics unit and Machine Intelligence Unit, Calcutta.*

52. Kretschmer, Hildrun, Board Member and Past President, International Society for Scientometrics and Informetrics (ISSI),Germany, March 15 - 19, 1998, *Documentation Research and Training Centre, Bangalore*

53. Lahiri, Amartya, University of California, USA, December 1-14, 1997, *Planning Unit, Delhi.*

54. Laoma, Arto, University of Tampere, Finland, December 28, 1997 - January 01, 1998, *Stat-Math Unit, Calcutta.*

55. Lobo, F., University de Nova, Lisbon, Portugal, February 27, 1998 - March 4, 1998, *Machine Intelligence Unit, Calcutta.*

56. Majumdar, K., University of Florida, USA, December 18, 1997, *Physics and Applied Mathematics Unit, Calcutta.*

57. Mathur, M., S N. Bose Centre for Basic Sciences, Calcutta, February 11, 1998, *Physics and Applied Mathematics Unit, Calcutta.*

58. Mehrotra, Devan, Merck Pharmaceutical, December 11, 1997, *Stat-Math Unit, Bangalore.*

59. Meyn, Sean P., University of Illinois, Urbana, October 16, 1997, *Stat-Math Unit, Bangalore.*

60. Mishra, Rama, NBHM - PDF, September 1, 1996 - September 30, 1997, *Stat-Math Unit, Delhi.*

61. Mitra, S.K., University of California, Santa Barbara, June 20, 1997, *Computer Vision and Pattern Recognition Unit, Calcutta.*

62. Mitra, N.K., Institute for Thermo and Fluid Dynamics, Ruhr University, Bochum, Germany, January 22, 1998, *Physics and Applied Mathematics Unit, Calcutta.*