

6. ACADEMIC ACTIVITIES

6.1 PELLETRON BEAM UTILIZATION BY USERS

6.1.1 Pelletron Beam Time Utilization and Experiments performed (April 2005-March 2006)

Users	No. of shifts allotted	PROJECTS IN			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic physics
A. Universities / Colleges					
Agra University	8		2		
AM University, Aligarh	25	2	2		
Anna University, Chennai	9		3		
Bangalore University	12		3		
BHUniversity, Varanasi	18	1	1		
Calcutta University	22	1	1		
Delhi University	17	1	1		
GB Pant University	3		1		
GND University, Amritsar	3		1		
Himachal Pradesh University	2		1		
HNB Garhwal University	3		1		
Hyderabad University	4		2		
JMI University, New Delhi	5		2		
Karnataka University	12	1			
Kiel University, Germany	2		1		
Kongunadu College, Kerala	3		1		
Kurukshetra University	8		3		
MDU, Rohtak	1			1	

Users	No. of shifts allotted	PROJECTS IN			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic physics
Mumbai University	10		2		
NM University, Nandurbar	3		1		
Periyar University	3		1		
Pune University	4		2		
Punjab University	55	4	1		
Punjabi University	6				1
Rajasthan University	11		4		
Saurashtra University	5		2		
Tezpur University	6		2		
B. Institutions					
BARC, Mumbai	10		2		
CSNSM, France	3		1		
GSI, Germany	15	1			
IIT, Delhi	5		2		
IIT, Mumbai	15	1			
IIT, Roorkee	15	1			
IOP, Bhubaneswar	7		2		
ISRO, Bangalore	2		1		
IUC-DAE, Indore	4		1		
IUAC, New Delhi	16		5		
NCSR, France	3		1		
SINP, Kolkata	18	1			
C. Facility tests					
	41				
Total	414	14	56	1	1

6.1.2 List of Users Family

The following list includes universities/colleges/institutions that have used the NSC Pelletron facility (once or more) since 1991.

(A) UNIVERSITIES - (69)

01.	Agra University (B.R. Ambedkar Univ.)	Agra
02.	Aligarh Muslim University	Aligarh
03.	Allahabad University	Allahabad
04.	Andhra University	Waltair
05.	Anna University	Chennai
06.	Assam University	Silchar
07.	Banaras Hindu University	Varanasi
08.	Bangalore University	Bangalore
09.	Berhampur University	Berhampur
10.	Bhagalpur University	Bhagalpur
11.	Bombay University	Mumbai
12.	Burdwan University	Burdwan
13.	Calcutta University	Kolkata
14.	Calicut University	Calicut
15.	Chaudhury Charan Singh University	Meerut
16.	Cochin University	Cochin
17.	Cochin University of Science & Technology	Cochin
18.	Delhi University	Delhi
19.	Devi Ahilya University	Indore
20.	G.B. Pant University	Pantnagar
21.	Gauhati University	Guwahati
22.	Gulbarga University	Gulbarga
23.	Guru Ghasidas University	Bilaspur
24.	Guru Nanak Dev University	Amritsar
25.	Himachal Pradesh University	Simla
26.	HNB Garhwal University	Srinagar Garhwal
27.	Hyderabad University	Hyderabad
28.	Jamia Milia Islamia University	New Delhi

29.	Jammu University	Jammu
30.	Jawaharlal Nehru University	New Delhi
31.	Kalyani University	Kalyani
32.	Karnataka University	Dharwad
33.	Kiel University	Germany
34.	Kurukshetra University	Kurukshetra
35.	Lucknow University	Lucknow
36.	Ludwig Maximillian University	Munich, Germany
37.	M.D. University	Rohtak
38.	M.L. Sukhadia University	Udaipur
39.	M.S. University	Baroda
40.	Madras University	Chennai
41.	Mahatama Gandhi University	Kottayam
42.	Mangalore University	Mangalore
43.	Manipur University	Imphal
44.	Mannonmaniam Sundarnar University	Tirunelveli
45.	Mysore University	Mysore
46.	Nagpur University	Nagpur
47.	North Eastern Hill University	Shillong
48.	North Maharashtra University	Nandurbar
49.	Osmania University	Hyderabad
50.	Patna University	Patna
51.	Periyar University	Kerala
52.	Pondichery University	Pondichery
53.	Poona University	Pune
54.	Punjab Agricultural University	Ludhiana
55.	Punjab University	Chandigarh
56.	Punjabi University	Patiala
57.	Rani Durgawati University	Jabalpur
58.	S.K. University	Anantpur
59.	Stuttgart University	Germany
60.	Saurashtra University	Rajkot
61.	Technical University	Darmstadt, Germany

62.	Tezpur University	Tezpur
63.	Shivaji University	Kolhapur
64.	University of Maryland	Maryland, USA
65.	University of Notre Dame	Notre Dame, USA
66.	University of Rajasthan	Jaipur
67.	Utkal University	Bhubaneswar
68.	Vikram University	Ujjain
69.	Vishva Bharti University	Bolpur

(B) COLLEGES - (43)

01.	Anand Mohan College	Kolkata
02.	Armed Forces Medical College	Pune
03.	Belonia College	Belonia, Tripura
04.	Bharatiya Jain Sanghatana College	Pune
05.	Bhiwandi College	Mumbai
06.	BNN College	Bhivandi, Madhya Pradesh
07.	CHM College	Ulhasnagar, Maharashtra
08.	College of Engineering and Technology	Aligarh
09.	DAV College	Mumbai
10.	DBS College	Dehradun
11.	Doodhsakhar Mahavidyalaya	Bidri, Maharashtra
12.	Govt. Art College	Rajamundri, Andhra Pradesh
13.	Govt. College	Ajmer
14.	Govt. College	Mehendragarh
15.	Govt. College	Kota
16.	Goyalpara College	Goyalpara, Assam
17.	Gurudas College	Kolkata
18.	Jai Hind College	Mumbai
19.	Kongunadu Arts & Science College	Coimbatore
20.	Koshi College	Khagaria, Bihar
21.	Mahila Degree College	Lucknow
22.	MR College	Vizianagram (AP)
23.	Malviya Regional Engg. College	Jaipur
24.	Nayagarh College	Nayagarh

25.	Nizam College	Hyderabad
26.	NSAM College	Mangalore
27.	Orissa Univ. of Agriculture & Tech.	Bhubneshwar
28.	Poorna Prajna College	Udipi, Karnataka
29.	Punjab Engineering College	Chandigarh
30.	RBS College	Agra
31.	RD & DJ College	Munger, Bihar
32.	Regional Engineering College	Kurukshetra
33.	RPG College	Ratnagiri
34.	School of Physical Sciences	Nanded, Maharashtra
35.	School of Tech. & Applied Sciences	Kottayam, Kerala
36.	SDM College	Ujire, Mysore
37.	Sharanabasaveshwar College of Science	Gulbarga
38.	Sri Bhuvanendra College	Karkala
39.	St. Edmunds College	Shillong
40.	Swami Shardhanand College	New Delhi
41.	University College	Kurukshetra
42.	University College of Science & Tech.	Kolkata
43.	Vaish College	Rohtak

(C) OTHER INSTITUTIONS - (47)

01.	AICTE	New Delhi
02.	Amity School of Engineering	New Delhi
03.	Bhabha Atomic Research Centre	Mumbai
04.	C.E.E.R.I.	Pilani
05.	CAT	Indore
06.	Centre for Superconductivity research	USA
07.	CSNSM, Orsay Cedex	France
08.	D.M.R.L.	Hyderabad
09.	Dayalbagh Educational Institute	Agra
10.	Defence Laboratory	Jodhpur
11.	Defence Research & Development Orgn.	Dehradun
12.	Genetic Institute of Manufacturing Technology	Singapore
13.	G S I	Germany

14.	Harcourt Butler Technological Institute	Kanpur
15.	I.G.C.A.R.	Kalpakkam
16.	Indian Institute of Science	Bangalore
17.	Indian Institute of Technology	Chennai
18.	Indian Institute of Technology	Kanpur
19.	Indian Institute of Technology	Kharagpur
20.	Indian Institute of Technology	Mumbai
21.	Indian Institute of Technology	New Delhi
22.	Indian Institute of Technology	Roorkee
23.	Indian Space Research Organisation	Bangalore
24.	INFN-LEGNARO	Italy
25.	INMAS	New Delhi
26.	Institute of Basic Sciences	Agra
27.	Institute of Materials Science	Bhubaneswar
28.	Institute of Physics	Bhubaneswar
29.	Institute of Science	Mumbai
30.	IUC-DAEF, Calcutta Centre	Kolkata
31.	IUC-DAEF, Indore Centre	Indore
32.	Joint Inst. of Nuclear Research	Dubna, Russia
33.	KIIT	Bhubaneswar
34.	Massachusetts Inst. of Technology	USA
35.	Nanocrystals Technology	USA
36.	National Academy of Science	Allahabad
37.	National Institute of Technology	Kurukshetra
38.	National Physical Laboratory	New Delhi
39.	NCSR	France
40.	Oak Ridge National Laboratory	USA
41.	Saha Institute of Nuclear Physics	Kolkata
42.	Sant Longowal Institute of Technology	Sangrur
43.	SSPL	New Delhi
44.	Tata Institute of Fundamental Research	Mumbai
45.	Thapar Inst. Of Eng. & Technology	Patiala
46.	VECC	Kolkata
47.	Wadia Institute of Himalayan Geology	Dehradun

6.2 M.Sc. ORIENTATION PROGRAMME

N. Madhavan

The two-week M. Sc. orientation programme has been providing hands on training in fields associated with accelerator based research to selected M. Sc. students by way of short projects. Those M. Sc. students desirous of taking part in this programme may get their applications forwarded through their department giving the relevant details such as the marks in all the exams till date, broad field of interest and the period convenient to them. Efforts are made to give chance to students from various parts of the country.

The details of some of the projects carried out in various fields in the year 2005-2006 are given below.

Name of student	Affiliation	Project title	Guide/Lab. at NSC
Mr. Nishant Sharma	Jamia Millia Islamia, Delhi	Structural studies of CdS cluster in thin SiO ₂ film: An XRD study	Mr. Fouran Singh, Materials Science Lab.
Ms. Aditi Gautam	Bundelkhand Univ., Jhansi	Calculation of Linear Energy Transfer using beams of Oxygen, Carbon and Lithium and Study of Mitotic Index and Chromosomal aberrations in human blood cells	Dr. Asiti Sarma, Radiation Biology Lab.
Ms. Suchita Kulkarni	Univ. of Mumbai, Mumbai	Characterization of neutron detectors	Ms. K. S. Golda, Neutron Lab.
Mr. Rupesh Shridhar Talawadekar	Univ. of Mumbai, Mumbai	Study of signal processing through various electronics and testing of NaI scintillation detector and Si surface barrier detector	Mr. Akhil Jhingan, Detector Lab.
Mr. Gautam Meahndiratta	Panjab Univ., Chandigarh	Study of neutron detector and its application in nuclear reaction experiments	Ms. K. S. Golda, Neutron Lab.

Name of student	Affiliation	Project title	Guide/Lab. at NSC
Ms. Farheen Naqvi	Univ. of Delhi, Delhi	Familiarization of ECR ion source based low energy ion beam facility and testing of UV spectrometer	Ms. Lakshmy, ECR Lab.
Ms. Namita Goel	Univ. of Delhi, Delhi	Study of gas ionization detector	Dr. T. Nandi, Atomic Physics Lab.

6.3 LIBRARY

Priyambada Nayak

Salient features

Working hours	: Round the clock, all days of the week
Total Books	: ~2500 (broadly covering the subjects Nuclear Physics, Materials Science, Nanotechnology, Electronics, Computers, Radio-biology, Radiation Physics, Vacuum Instrumentation, Cryogenics, Atomic Physics, Mathematical Physics, Quantum Mechanics, Astrophysics etc.)
New Books added in 2005-06	: 75
Current Journals	: 52
New Journals added in 2005-06	: 04
Bound Journals	: ~7400
Laboratory Reports	: ~900 (from nearly 50 labs)
New Reports arrived in 2005-06	: 30
Reprints/Photocopies	: ~700
Newsletters, House magazines etc.	: 50

Data books, Manuals etc.	: ~550
Ph.D. Thesis	: 95
CD-ROM Database	: INIS 1976-present
Microfilm Collection	: IEEE Transactions on Nuclear Science Vol. 1-32 (1954-85)
Hardware	: Cyrix M II with 64MB RAM & 2.1GB HD. Minolta RP 503 Microfilm reader-printer
Collaborating Arrangements	: Photocopy Service from INSDOC
Clientele	: Apart from NSC staff and students, the library is consulted by students, teaching and research staff from over 100 academic and research institutions from different parts of the country.

The technical reports and technical memos of various projects carried out at IUAC are also compiled and kept in the library for reference purpose. ERL server from Silver Platter has been installed on intranet server to access the INIS database. Web-based OPAC and library cataloging software package has been installed for the computerization of library documents. The catalog of books, Ph.D. Thesis, Manuals and Conference Proceedings are already computerized and it can be searched by author, title, keyword etc. With the advent of the facility for online access of various journals through internet, full-text of a number of journals is now accessible. Apart from the print journals, PROLA and IOP journal archive (online), SCIENCE DIRECT are also being subscribed to by the library. The library is also a member of UGC-INFONET and more that 100 journals are being accessed on-line through this facility. The library is open round the clock. Hence, automatic monitoring system by camera has been installed.

6.4 THE PHD TEACHING PROGRAMME

S.K. Datta

The two semester Ph.D. Modular courses meant for outside university students as also for our training for the scientist trainees and JRFs continued to run well during this year. In the Jan- May Semester, Experimental Physics and Accelerator Physics were offered and in the August-December Semester, Computers in Instrumentation and Data acquisition, Materials Science Courses and Nuclear Physics courses were offered.

The duration of the courses is increased so that each course has four credit hour values. Emphasis is put on home works and assignments. The courses are being taught by selected staff members of NSC as well as reputed teachers from outside.

This year, a basic course on classical mechanics, consisting of ten lectures by the renowned Delhi University professor (retired) Prof. Kamal Datta was arranged. The course was attended by several students. Attempts will be made to arrange similar basic courses in future also, depending on student demand.

At the beginning of each semester, a poster is printed and circulated to various universities, Departments of Physics, inviting application for attendance to the courses. Accommodation and TA/DA are provided to the selected participants. Information is also available on our website.

In Jan- May, 2005 Semester, 19 students from 12 universities and 1 Institution participated. They were from Aligarh Muslim University, Allahabad University, Bangalore University, Chaudhuri Charan Singh University, Meerut, Delhi University, Gauhati University, Guru Ghasidas University, Bilaspur, Jawaharlal Nehru University, Jiwaji University, Gwalior, Karnatak University, Kurukshetra University, MS University, Baroda and Institute of Plasma Research, Gandhi Nagar. In addition 3 scientist trainees, and 2 JRF's of NSC also participated in the course work.

In Aug-Dec Semester in 2005, 22 students from 13 universities, 2 colleges and 1 IIT attended. The participants were from Allahabad University, Anna University, Bangalore University, B.R.Ambedkar University, Calicut University, Chaudhuri Charan Singh University, Delhi University, GT Patil College, Nandurbar, Hyderabad University Jamia Millia University, Madras University, Mangalore University, Ravenshaw University, RBS College, Agra, Saurashtra University, and IIT Roorkee. 3 scientist trainees and 1 JRF' also attended part of the course.

6.5 ACADEMIC ACTIVITIES HELD IN 2005-2006

20th May	IUAC Acquaintance Program at NEHU, Shillong (Contact Person: R.K. Bhowmik, IUAC)
6-7th July	User Workshop - Accelerator Users Presentations for Beam Time Proposals
8th July	AUC Meeting
28th July	IUAC Ph.D Teaching Program: Fall Semester starts
10-12th August	IUAC Academic Workshop

26th August	IUAC Acquaintance Program at Jiwaji University, Gwalior (Contact Person: D.K. Avasthi, IUAC)
23rd September	Workshop on “Accelerator Mass Spectroscopy” at IUAC (Contact Person: S. Chopra, IUAC)
21st October	Workshop on Radiation Biology at IUAC (Contact Person: Asiti Sarma, IUAC)
14th November	Workshop on RFQ at IUAC (Contact Person: C.P. Safvan, IUAC)
17-18th December	User Workshop- Accelerator Users Presentations for Beam Time Proposals
19th December	Foundation Day and AUC Meeting
12th January, 2006	IUAC Ph.D. Teaching Program, Spring Semester starts
13-14th February	IUAC Academic Workshop
24th February	IUAC Acquaintance Programme at Vallabh Vidyanagar, Anand, Gujarat (Contact Person: A. Tripathi, IUAC)
28th February	National Science Day at IUAC (Contact Person: A. Sarma and K. Asokan)
13th March	Workshop on Engineering Challenges for Future Accelerators at IIT Delhi (Contact Person: R. Mehta, IUAC)

6.6 CALENDAR OF FORTHCOMING EVENTS: 2006

10-11th April	Workshop on Cryogenic Science and Technology in India: Present and Future at IUAC (Contact Person: T.S. Datta, IUAC)
21st April	Workshop on Physics with Accelerators (Contact Person: D.K. Avasthi, IUAC)
19th May	IUAC Acquaintance Programme at Dehradun (Contact Person: S. Nath, IUAC)
4-9th June	School on Radiation Biology at IUAC (Contact Person: A. Sarma, IUAC)

12-16th June	School on X-Ray Techniques in Materials Science at IUAC (Contact Person: A. Tripathi, IUAC)
6-7th July	User Workshop – Accelerator Users Presentations for beam time proposals
8th July	40 th AUC Meeting
28th July	IUAC Ph.D Teaching Programme, Fall Semester starts
9-11th August	IUAC Academic Workshop
25th August	IUAC Acquaintance Programme at Kolkata (Contact Person: R.K. Bhowmik , IUAC)
14-15th September	Workshop on Nuclear Physics with LINAC beam at IUAC (Contact Person: S.Muralithar and N.Madhavan, IUAC)
25-26th September	Workshop on Materials Science at IUAC (Contact Person; Ravi Kumar)
31st Oct. – 1st Nov.	Workshop on Nanotechnology at IUAC (Contact Person: D.K. Avasthi, IUAC)
17th November	IUAC Acquaintance Programme at Coimbatore University (Contact Person: N. Madhavan, IUAC)
17-18th December	User Workshop – Accelerator Users Presentations for beam time proposals
19th December	Foundation Day and 41 st AUC Meeting

6.7 LIST OF SEMINARS CONDUCTED IN THE YEAR 2005-2006

<i>S.No.</i>	<i>Date</i>	<i>Title</i>	<i>Name & Affiliation</i>
1.	11.4.05	Negative Refraction	Dr. Swapan Kr. Datta IUAC, New Delhi
2.	25.4.05	Einstein's Work on Brownian Motion & the Photon	Dr. Sushanta Dattagupta SN Bose National Centre for Basic Sciences
3.	2.5.05	Testing of Electronics Systems on overview	Dr. Satish Dhawan Yale University, USA

<i>S.No.</i>	<i>Date</i>	<i>Title</i>	<i>Name & Affiliation</i>
4.	10.5.05	Importance of optical observations in modern astrophysical studies	Prof. Ram Sagar Director, Aryabhata Research Instt. of Observational Sciences
5.	12.5.05	Hans Albrecht Bethe-Physicist Extraordinary	Dr. Indranil Majumdar TIFR, Mumbai
6.	16.5.05	Semiconductor/Ferromagnet hybrid devices for spintronics	Dr. Tamalika Banerjee MESA, Instt. for Nanotechnology, Univ. of Twente, Netherland
7.	6.6.05	Defence & Strategic Instrumentation at CSIO	Dr. Pawan Kapur Director, CSIO, Chandigarh
8.	6.6.05	Quantum Computers - The information processors of the future	Dr. Arvind GNDU, Amritsar
9.	7.6.05	Novel Experiment for physics teaching	Dr. Arvind GNDU, Amritsar
10.	10.6.05	High Field Measurements in UPt ₃ & URu ₂ Si ₂	Dr. Bimal K. Sarma Univ. of Wisconsin Milwaukee USA
11.	8.7.05	Physics at GANIL today & tomorrow	Prof. Gilles de France GANIL, France
12.	22.7.05	Symmetries in fast rotating nuclei	Dr. S. Lakshmi TIFR, Mumbai
13.	26.7.05	Ion collisions with liquid microdroplets	Ms. G.K. Padmashree IUAC, N. Delhi
14.	1.8.05	Application of Mass Spectrometry for environmental monitoring samples	Dr. S.K Sahoo NIRS, Japan
15.	9.8.05	Investigation on biomineralization	Dr. S. Narayana Kalkura CGC, Anna Univ., Chennai
16.	23.8.05	Subtle are the ways of the Lord: a case study of AMS at IUAC	Dr. S.K Datta IUAC, New Delhi

<i>S.No.</i>	<i>Date</i>	<i>Title</i>	<i>Name & Affiliation</i>
17.	1.9.05	Scanning probe microscopy- basics & applications	Mr. Ambuj Tripathi IUAC, New Delhi
18.	14.9.05	Programming AVR micro- controllers	Mr. B.P. Ajithkumar & Mr. K. Singh, IUAC, New Delhi
19.	15.9.05	Metamorphosis of libraries	Mrs. Priyambada Nayak, IUAC, New Delhi
20.	20.9.05	Search for super-heavy isotopes- a new phenomenon	Prof. L. Satpathy IOP, Bhubaneswar
21.	22.9.05	Co-axial Cables construction testing applications	Dr. J.M. Garg Director, Garg Associates
22.	20.10.05	Radiation induced signal transduction - finding a method behind the madness	Dr. Malini Krishna BARC, Mumbai
23.	7.11.05	Thermal spike theories of some ion induced effects	Dr. George Szenes Eotvos Univ., Hungary
24.	17.11.05	Ion irradiation effects in gels and glasses	Dr. J.C. Pivin CSNSM, France
25.	21.11.05	Multiple & dissociative ionization of atoms & molecules by impact of keV electrons	Dr. R. Shanker BHU
26.	23.11.05	Strained silicon on insulator fabrication via wafer bonding & layer transfer approach for nano CMOS applications	Dr. Rajendra Singh Max-Planck Inst. Halle, Germany
27.	24.11.05	Highlights of physics with RISING at GSI & future possibilities	Prof. Hans J. Wollershem GSI, Germany
28.	24.11.05	All sprayed CuInS ₂ /In ₂ S ₃ solar cell material characterisation & device fabrication	Dr. K.P. Vijaykumar Cochin University
29.	28.11.05	Structure based protein engineering in plant proteins	Dr. J.K. Duttagupta SINP, Kolkata
30.	1.12.05	An advanced ISOL facility for neutron rich radioactive ion beams using electro-fission	Mr. J.J. Das IUAC, New Delhi

<i>S.No.</i>	<i>Date</i>	<i>Title</i>	<i>Name & Affiliation</i>
31.	2.12.05	Laser spectroscopy & penning trap mass spectrometry-atomic physics tools in nuclear physics	Dr. Klaus Blaum Instt for Physik Johannes Gutenberg Universitat, Mainz, Germany
32.	7.12.05	Atomic Processes and data for laboratory & astrophysical plasma application in X-ray diagnostics	Dr. Arti Dasgupta Plasma Physics Div. Naval Research Lab, USA
33.	8.12.05	An overview of SHIM-05	Dr. D.K. Avasthi IUAC, New Delhi
34.	20.12.05	In situ plasma instruments the challenges for future space missions	Mr. D.O. Kataria Mallard Space Science Lab, Univ. college of London, UK
35.	27.12.05	Frontiers in nanoscience & nanotechnology	Prof. Jagdish Narayan North Carolina State Univ.,
36.	9.1.06	Nuclear Science & Sustainable development	Prof. Shamsheer Ali President, Bangladesh Academy of Sciences Vice Chancellors, Southeast Univ.
37.	16.1.06	Calculations of Ion-atom scattering system	Prof. Burkhard Fricke Univ. of Kassel, Germany
38.	19.1.06	Constituents of matter and their interactions	Dr. B.K. Pal, HP Univ, Shimla
39.	23.1.06	TRIUMF : Canada's national lab for particle and nuclear physics	Prof. Lothar Buchmann TRIUMF, Canada
40.	24.1.06	Spectroscopy of neutron rich 'sd' shell nuclei	Dr. Vandana Tripathi Florida State Univ.,
41.	28.2.06	New level structures in neutron rich nuclei and new alpha emitters ^{109}Xe and ^{105}Te	Prof. JH Hamilton Vanderbilt Univ., USA
42.	2.3.06	Overview of international linear collider	Dr. Barry Barish Director, Global design effort international linear collider

<i>S.No.</i>	<i>Date</i>	<i>Title</i>	<i>Name & Affiliation</i>
43.	20.3.06	QED contributions to the atomic structure at strong central fields	Prof. P.H. Mokler GSI & Univ. of Giessen, Germany
44.	3.4.06	Design of DTL (Drift tube LINAC)	Mr. B.P. Ajithkumar, IUAC, New Delhi
45.	28.3.06	Negative refraction -a revolution in optics	Dr. Ananth Ramakrishna IIT, Kanpur
46.	31.3.06	Scaling relations for nano- structures created on INP (111) surfaces by MeV ion implantation	Dr. Shikha Verma IOP, Bhubaneswar

6.8 LIST OF PUBLICATIONS (2005-2006)

A. Nuclear Physics

1. *Nuclear quadrupole moments of $5/2^-$ and $9/2^-$ states in ^{169}Ta* , Vivek Kumar, P.Thakur, A.K.Bhati, R.P.Singh, and R. K. Bhowmik, Eur.Phys.J. A 26, 311 (2005).
2. *Band structure in ^{83}Rb from lifetime measurements*, S. Ganguly, P. Banerjee, I. Ray, R. Kshetri, S. Bhattacharya, M. Saha-Sarkar, A. Goswami, S. Muralithar, R.P. Singh, R. Kumar, R.K. Bhowmik, Nucl. Phys. A 768, 43 (2006).
3. *Collective structures of the ^{131}Cs nucleus*, R.Kumar, K.Singh, D.Mehta, N.Singh, S.S.Malik, E.S.Paul, A.Gorgen, S.Chmel, R.P.Singh, S.Muralithar, Eur.Phys.J. A 24, 13 (2005).
4. *Structure of odd-odd ^{136}La at high spin*, T.Bhattacharjee, S.Chanda, S. Bhattacharyya, S.K.Basu, R.K.Bhowmik, S.Muralithar, R.P.Singh, N.S.Pattabiraman, S.S.Ghugre, U.Datta Pramanik, S.Bhattacharya, Nucl.Phys. A750, 199 (2005).
5. *Shape coexistence and lifetime measurement in ^{187}Tl nucleus*, S.K.Chamoli, P.Joshi, A.Kumar, R.Kumar, R.P.Singh, S.Muralithar, R.K.Bhowmik, I.M.Govil Phys.Rev. C 71, 054324 (2005).
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C. Others

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4. *How Safe is fly ash as a dwelling construction Material*, R. G. Sonkawade, S. K. Saini, K. Kant, Proc. of International Congress on Fly Ash Utilization, pp. IV.6.1-6.7, 2005.
5. *Evaluation and Estimation of Residual Radioactivity for the Decontamination and Decommissioning of Accelerator Components*, R. G. Sonkawade, Proc. of 10th International Conference on Environmental Remediation and Radioactive Waste Management, Published by ASME, pp. 1-4, 1039, 2005

6.9 LIST OF TECHNICAL REPORTS / TECHNICAL MEMOS (2005-06)

A. LIST OF TECHNICAL REPORTS

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
1.	Construction of Heavy Concrete wall in Beam Hall II	M.K. Gupta	Civil	IUAC/TR/MKG/2005-06/01
2.	Pneumatic Valve Controller	P. Barua, M. Archunan	Electronics	IUAC/TR/PB/2005-06/02
3.	AMS Arget Ladder and chamber light controller	M. Archunan P. Barua,	Electronics	IUAC/TR/MA/2005-06/03
4.	Double Slit Controller	P. Barua, M. Archunan	Electronics	IUAC/TR/PB/2005-06/04
5.	Experimental setup for studies on ion collisions with liquid microdroplets	G.K.Padmashree, R. Ahuja, Sunder Rao, CP Safvan, D. Kanjlal and A. Roy	Accelerator Instrumentation	IUAC/TR/GKP/2005-06/05
6.	Miscellaneous Preventive Maintenance works and the problems encountered	M.K. Gupta	Civil	IUAC/TR/MKG/2005-06/06

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
7.	Fabrication of isotopic Tungsten target on carbon backing	PD Shidling, Abhilash S.R. D. Kabiraj, N. Madhavan, N.M. Badiger	Thin Film	IUAC/TR/PDS/2005-06/07
8.	8-Channel Voltage Monitor	Yaduvansh Mathur, UK Rao	Instrumentation	IUAC/TR/YM/2005-06/08
9.	Comparison of TTL Based/FPGA Based Histogram camac module	R. Ruby Santhi, B.P Ajith Kumar	Instrumentation	IUAC/TR/RRS/2005-06/09
10.	Set up study and modification of LN2 level controlling by heater for the LINAC cryostat shield cooling	Suresh Babu, Anu PC, Joby A, R.S Meena, Manoj Kr, SA Krishnan, S.Kar, Jacob C, T.S. Datta	Development	IUAC/TR/SB/2005-06/10
11.	Evaluation and Estimation of Residual radioactivity for the decontamination and decommissioning of Accelerator Components	R.G. Sonkawade	Radiation Physics	IUAC/TR/RGS/2005-06/11
12.	Design, Fabrication, Installation and Testing of high energy sweeper	S. Ghosh, SSK Sonti, A.Sarkar, VV Sivakumar, A.Rai, P. Barua, SK Datta, RK Bhowmik & A. Roy	Accelerator	IUAC/TR/SG/2005-06/12
13.	Design fabrication and commissioning of high pressure rinsing system	SSK Sonti, Rajeev Mehta, D.S Mathuria, PN Prakash, A. Roy	Accelerator	IUAC/TR/SSKS/2005-06/13

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
14.	How safe is fly ash as building construction material in dwellings	RG Sonkawade, SK Saini, K. Kant	Radiation Physics	IUAC/TR/RGS/2005-06/14
15.	Electronic Controller for the High Pressure Rinsing System	DS Mathuria, SSK Sonti, PN Prakash	Accelerator	IUAC/TR/DSM/2005-06/15
16.	Magnet Faraday cup interlock	Yaduvansh Mathur, UK Rao	Instrumentation	IUAC/TR/YM/2005-06/16
17.	Vacuum Interlocking System for general purpose testing system	M. Archunan, P. Barua, A. Kothari	Electronics	IUAC/TR/MA/2005-06/17
18.	ADC &PSC with FPGA-Based Histogram CAMAC module	R. Ruby Santhi, BP Ajith Kumar	Instrumentation	IUAC/TR/RRS/2005-06/18
19.	Modification of High pressure rinsing system	SSK Sonti, Jimson Zacharias, Rajeev Mehta, D. Kanjilal	Accelerator	IUAC/TR/SSKS/2005-06/19
20.	Set up for annealing in vacuum positive pressure and in ambient gases- An additional attachment in Tube Furnace	Abhilash SR, D. Kabiraj, Jimson Zacharias, Richa Krishna, Manoj Kr, D. Kanjilal, DK Avasthi	Development	IUAC/TR/SRA/2005-06/20
21.	Beam single and beam two foil experimental facility at IUAC	T. Nandi, Nassar Ahmad, AA Wani, R. Ram, SR Abhilash, Rakesh Kumar, JK Pattnaik, Sankar De, RK Karn	Atomic Physics	IUAC/TR/TKN/2005-06/21

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
22.	A new mode of beam two foil experiment at IUAC	T. Nandi, Nassar Ahmad, AA Wani	Atomic Physics	IUAC/TR/TKN/2005-06/22
23.	Typical leak testing of 3 cavities	Jacob Chacko	Accelerator	IUAC/TR/JC/2005-06/23
24.	Switch gear for beam line selection	Rajesh Kumar, SK Suman, Raj Kumar, A. Mandal	Electronics	IUAC/TR/RJK, SKS/2005-06/24
25.	Switch gear control panel	Rajesh Kumar, SK Suman, A. Mandal	Electronics	IUAC/TR/RJK, SKS/2005-06/25
26.	Super conducting magnet power supply controller	SK Suman, Rajesh Kumar, A. Mandal	Instrumentation	IUAC/TR/SKS/2005-06/26
27.	BGO detector bias supply	Rajesh Kumar, SK Suman, A. Mandal	Electronics	IUAC/TR/RJK, SKS/2005-06/27
28.	Resonator heater power supply	Rajesh Kumar, SK Suman, A. Mandal	Electronics	IUAC/TR/RJK, SKS/2005-06/28
29.	Single phase AC regulator using SCR	Rajesh Kumar, SK Suman, A. Mandal	Electronics	IUAC/TR/RJK, SKS/2005-06/29
30.	High current scanner magnet power supply	SK Suman, Rajesh Kumar, A. Mandal	Electronics	IUAC/TR/SKS/2005-06/30
31.	400 Vpp high voltage amplfier	SK Suman, Rajesh Kumar, A. Mandal	Electronics	IUAC/TR/SKS/2005-06/31
32.	Design and development of vortex tube	Suresh Babu, SK Saini, Rewa Ram, S. Rao, Manoj kr, SA Krishnan, RS Meena,	Development	IUAC/TR/SBabu/2005-06/32

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
		Soumen Kar, Jacob, Anup.C, TS Datta		
33.	A Precise 73-410K FPGA based cryogenic temperature monitor	Joby Antony, DS Mathuria	Instrumentation	IUAC/TR/JA/ 2005-06/33
34.	Temperature mapping of the quarter wave resonator at IUAC	A. Rai, S. Ghosh, S. Kar, R.S. Meena	Accelerator	IUAC/TR/ A.Rai/ 2005-06/34
35.	Attenuation Study of Neutron shielding Slabs	SP Lochab, RG Sonkawade & D. Kanjilal, Birendra Singh	Health Physics	IUAC/TR/SPL/ 2005-06/35
36.	Dynamic load (Rf) verification test in simple test cryostat	S. Kar, Anup Chowdhury, RS Meena, Manoj kr, S. Babu, J.Chacko, J Antony, TS Datta	—	IUAC/TR/ S.Kar/ 2005-06/36
37.	Vacuum studies of the Ist Linac module	S.Kar, Anup Chowdhury, RS Meena, Manoj kr, S. Babu, J.Chacko, J Antony, TS Datta	—	IUAC/TR/ S.Kar/ 2005-06/37
38.	Multi channel analyser using embedded PC	VVV Satyanarayana, BP Ajith Kr, Rubu Santi	Instrumenta- tion	IUAC/TR/ VVVS/ 2005-06/38
39.	Wien filter calibration using $^{16}\text{O}^{5+}$ tail present in mass 14 injection	Pankaj Kumar, JK Pattanaik, KS Golda, Sunil Ojha, S. Gargari, T.Nandi, S. Chopra, SK Datta	Accelerator	IUAC/TR/PK/ 2005-06/39

B. LIST OF TECHNICAL MEMOS

<i>Sl. No.</i>	<i>Title</i>	<i>Authors</i>	<i>Category</i>	<i>Reference No.</i>
1.	Repairing of Gamma Area Monitors	Birender, R. Joshi, SP Lochab	Instrumentation	IUAC/TM/Birendra/2005-06/01
2.	Servicing of EG&G ORTEC Gate and delay generators	VVV Satyanarayana	Instrumentation	IUAC/TM/VVVS/2005-06/02
3.	Servicing of Danfysik current integrators	VVV Satyanarayana	Instrumentation	IUAC/TM/VVVS/2005-06/03
4.	Modification of safety relief valve of 20,000 lit storage tank	Suresh Babu, Manoj Kumar	Maintenance	IUAC/TM/S.Babu/2005-06/04
5.	Common problems of current integrator	UK Rao, Y. Mathur, VVV Satyanarayana	Instrumentation	IUAC/TM/UKR/2005-06/05
6.	Repairing of capacitance meter	UK Rao, Y. Mathur, Sugam Kumar	Instrumentation	IUAC/TM/UKR/2005-06/06
7.	Resistor network for monitoring source current fluctuations	Yaduvansh Mathur, UK Rao	Instrumentation	IUAC/TM/YM/2005-06/07
8.	Repairing of NIM/BIN Power supply	Yaduvansh Mathur, UK Rao	Instrumentation	IUAC/TM/YM/2005-06/08
9.	Servicing of EG&G ortech preamplifier	VVV Satyanarayana	Instrumentation	IUAC/VVVS/TM/2005-06/09
10.	Discharging of the extraction power supply (30 kV, 25 mA) beyond 2-3 kV	P.Kumar, G Rodrigues, PS Lakshmy, UK Rao, Y. Mathur & D. Kanjilal	Ion Source	IUAC/PK/TM/2005-06/10
11.	Radiation Survey in Beam Hall-II	SP Lochab, Birender Singh	Health Physics	IUAC/TM/SPL/2005-06/11

6. 10 Teaching Lab Activities

IUAC has initiated following activities to improve the physics lab facilities in the universities:

(a) a low cost “Radiation detection and Analysis System” has been developed which is useful to carry out some of the Nuclear Physics experiments at M.Sc level. This has been distributed to the following universities/colleges after proper training.

Sr. No.	Member who attended the training program	University
1	Dr. J.M Dhimmar	South Gujarat University, Surat
2	Dr. M.M. Mustafa	Univ. of Calicut, Calicut
3	Dr. Indira Mehrotra	Univ. of Allahabad, Allahabad
4	Dr. Raman Sharma	Himachal Pradesh University, Shimla
5	Dr. A. Rajan Nambiar	Govt. Arts & Science College, Calicut
6	Dr. K.K Abdullah	Farook College, Calicut
7	Dr. N.S. Saini,	GND Univ., Amritsar
8	Dr. Anju Bhasin	Univ. of Jammu, Jammu
9	Dr. Y.K. Vijay	Univ. of Rajasthan, Jaipur
10	Prof. S. Bangar Raju	Andhra Univ., Visakhpatnam
11	Dr. B.P. Singh	Aligarh Muslim Univ, Aligarh
12	Prof. Narendra Patel	MS Univ., Vadodara
13	Dr. Tushar Rajan Routray	Sambalpur Univ., Sambalpur
14	Dr. Devinder Mehta	Panjab Univ, Chandigarh
15	Dr. K. Venugopalan	ML Sukhadia Univ., Udaipur
16	Dr. J. Kumar	CGC, Anna Univ, Chennai
17	Dr. G. A. Ahmed	Tezpur Univ, Tezpur
18	Dr. K. Boruah	Gauhati Univ. Guwahati-
19	Sh. Rohit Verma	JC DAV College, Dasuya (Hoshiarpur)
20	Dr. Chirantan Neogy	Kalyani Univ., West Bengal
21	Dr. D.Behera	Utkal Univ., Bhubaneswar
22	Dr. Arani Chakravarty	Visva Bharti, West Bengal
23	Dr. A. Stephen	Univ. of Madras, Chennai
24	Dr. Basudeb Sahu	North Orissa Univ., Baripada
25	Dr. P.K. Joshi	BHU, Varanasi

This year six units were given to various universities.

(b) A simple and cost effective PC interface (called Phoenix) has been designed which will encourage many computer aided experiments and data analysis. IUAC organized ten one-day workshops at various universities/colleges as listed below:

Date	University/colleges
14-11-2004	Univ. of Calicut, Kerala
21-2-2005	M.S.University, Udaipur, Rajasthan
9-3-2005	Govt. Brennen College (Univ of Kannur), Kerala
10-3-2005	St. Thomas College (Univ. of Calicut), Kerala
11-3-2005	St. Thomas College (M.G.University), Kerala
14-3-2005	Anna University, Tamilnadu
16-7-2005	MMC College, Kolkata (IAPT Program)
16-8-2005	Sambhalpur University, Orissa
18-8-2005	Utkal University, Orissa
19-8-2005	ITER, Bhubaneswar
21-12-2005	Khalsa College, Amritsar

IUAC organized a one day workshop for 30 Delhi science college teachers on the eve of teacher's day, 5th September, 2005 and also as a part of International Year of Physics, 2005. Professors H.S. Mani (Ex-director, HCRI, Allahabad), and Ajay Ghatak (IIT, Delhi) gave invited talks followed by demonstration experiments on Relativity using Pelletron by Dr. S.K. Datta (IUAC) and experiments using Phoenix interface (Mr. B.P. Ajith Kumar, IUCA). This program was followed by two days training on low cost data acquisition systems attended by teachers from various universities.

A two weeks intensive training programme on Phoenix interface from 3rd to 14th October, 2005 was organized. It was attended by 16 physics teachers from various colleges and universities.