

6. ACADEMIC ACTIVITIES

6.1 PELLETRON BEAM UTILIZATION BY USERS

6.1.1 Pelletron Beam Time Utilization and Experiments performed (April 2007 - March 2008)

Users	No. of shifts allotted	Projects in			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic Phys. /AMS
A. Universities / Colleges					
Agra University	9		3		
Allahabad University	7		3		
AM University	38	2	2		
Amity Eng. College	2		1		
Anna University	7		2		
Bangalore University	12		4		
Bareilly College, UP	3		1		
BH University	10	1		1	
BRAmbedkar University	6		2		
Calicut University	18	1	1		
Calcutta University	2		1		
Cochin University	3		1		
Delhi University	12	1	1		
GB Pant University	3		1		
GND University	16		5		
Govt. College, Bharatpur	2		1		
HNB University	5		2		
Hyderabad University	9		2		
Jami Milia I. University	2		1		
JN University	3		1		
Kashmir University	3		1		
Kiel University	3		1		
Kongunadu Coll., Kerala	3		1		
Kurukshetra University	3		1		
Madras University	3		1		
MMH Coll., Ghaziabad	3		1		
MS University, Baroda	3		1		
Mumbai University	10		3		
NEH University, Shillong	2			1	
Orissa University	4		1		
Presidency Coll. Kolkata	2		1		
Punjab University	33	2			
Rajasthan University	7		3		
SVM College Orissa	3		1		
Tezpur University	7		3		
Utkal University	6		2		

Users	No. of shifts allotted	Projects in			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic Phys. /AMS
B. Institutions					
BARC, Mumbai	6		1		
CSNSM, France	8		2		
Dayalbagh Inst., Agra	5		1		
IIT, Delhi	14		5		
IIT, Mumbai	3		1		
ISRO, Bangalore	2		1		
IUAC, New Delhi	67	2	6		2
IUC-DAE, Indore	7		3		
NCAOR, Goa	3				1
NIT, Silchar	2		1		
NIT, Srinagar	2		1		
NPL, New Delhi	3		1		
TIFR, Mumbai	11	1			
VECC, Kolkata	18	1	1		
C. Facility tests	40				
Total	455	11	80	2	3

6.1.2 List of Users Family

The following list includes Universities/Colleges/Institutions that have used the IUAC Pelletron facility (once or more) since 1991.

(A) UNIVERSITIES - (79)

- | | | |
|-----|---------------------------------------|----------------|
| 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. | Bharthidasan University | Tirucherapalli |
| 12. | Bhavnagar University | Bhavnagar |
| 13. | Bombay University | Mumbai |

14.	Burdwan University	Burdwan
15.	Calcutta University	Kolkata
16.	Calicut University	Calicut
17.	Chaudhury Charan Singh University	Meerut
18.	Cochin University	Cochin
19.	Cochin University of Science & Technology	Cochin
20.	Delhi University	Delhi
21.	Devi Ahilya University	Indore
22.	Dr. B.A.M. University	Aurangabad
23.	G.B. Pant University	Pantnagar
24.	Gauhati University	Guwahati
25.	Gujarat University	Ahmedabad
26.	Gulbarga University	Gulbarga
27.	Guru Ghasidas University	Bilaspur
28.	Guru Nanak Dev University	Amritsar
29.	Himachal Pradesh University	Simla
30.	HNB Garhwal University	Srinagar Garhwal
31.	Hyderabad University	Hyderabad
32.	Indra Prastha University (GGSIPU)	New Delhi
33.	Jamia Milia Islamia University	New Delhi
34.	Jammu University	Jammu
35.	Jawaharlal Nehru University	New Delhi
36.	Kalyani University	Kalyani
37.	Karnataka University	Dharwad
38.	Kashmir University	Srinagar
39.	Kiel University	Germany
40.	Kurukshetra University	Kurukshetra
41.	Kuvempu University	Shankaraghatta, Shimoga
42.	Lucknow University	Lucknow
43.	Ludwig Maximillian University	Munich, Germany
44.	M.D. University	Rohtak
45.	M.L. Sukhadia University	Udaipur
46.	M.S. University	Baroda
47.	Madras University	Chennai
48.	Mahatama Gandhi University	Kottayam
49.	Mangalore University	Mangalore
50.	Manipur University	Imphal
51.	Mannonmaniam Sundaranagar University	Tirunelveli
52.	Mysore University	Mysore
53.	Nagpur University	Nagpur
54.	North Carolina State University	USA
55.	North Eastern Hill University	Shillong
56.	North Maharashtra University	Nandurbar
57.	North Orissa University	Baripada
58.	Osmania University	Hyderabad
59.	Patna University	Patna

60.	Periyar University	Kerala
61.	Pondichery University	Pondichery
62.	Poona University	Pune
63.	Punjab Agricultural University	Ludhiana
64.	Punjab University	Chandigarh
65.	Punjabi University	Patiala
66.	Rani Durgawati University	Jabalpur
67.	S.K. University	Anantpur
68.	Stuttgart University	Germany
69.	Saurashtra University	Rajkot
70.	Technical University	Darmstadt, Germany
71.	Tezpur University	Tezpur
72.	Shivaji University	Kolhapur
73.	University of Maryland	Maryland, USA
74.	University of Notre Dame	Notre Dame, USA
75.	University of Rajasthan	Jaipur
76.	Utkal University	Bhubaneswar
77.	Vikram University	Ujjain
78.	Vishwa Bharti University	Bolpur
79.	West Bengal University of Technology	Kolkata

(B) COLLEGES - (50)

01.	Anand Mohan College	Kolkata
02.	Armed Forces Medical College	Pune
03.	Bareilly College	Bareilly
04.	Belonia College	Belonia, Tripura
05.	Beant College of Eng. and Technology	Gurdaspur
06.	Bharatiya Jain Sanghatana College	Pune
07.	Bhiwandi College	Mumbai
08.	BNN College	Bhivandi, Madhya Pradesh
09.	CHM College	Ulhasnagar, Maharashtra
10.	College of Engineering and Technology	Aligarh
11.	DAV College	Mumbai
12.	DBS College	Dehradun
13.	Doodhsakhar Mahavidyalaya	Bidri, Maharashtra
14.	Ewing Christian College	Allahabad
15.	Govt. Art College	Rajamundri, Andhra Pradesh
16.	Govt. College	Ajmer
17.	Govt. College	Mehendragarh
18.	Govt. College	Kota
19.	Govt. MSJ College	Bharatpur
20.	Goyalpara College	Goyalpara, Assam
21.	Gurudas College	Kolkata
22.	Jai Hind College	Mumbai
23.	Kongunadu Arts & Science College	Coimbatore
24.	Koshi College	Khagaria, Bihar

25.	Mahila Degree College	Lucknow
26.	M.M.H.College	Ghaziabad
27.	MR College	Vizianagram (AP)
28.	Malviya Regional Engg. College	Jaipur
29.	Nayagarh College	Nayagarh
30.	Nizam College	Hyderabad
31.	NSAM College	Mangalore
32.	Orissa Univ. of Agriculture & Tech.	Bhubneshwar
33.	Poorna Prajna College	Udipi, Karnataka
34.	Punjab Engineering College	Chandigarh
35.	RBS College	Agra
36.	RD & DJ College	Munger, Bihar
37.	Regional Engineering College	Kurukshetra
38.	RPG College	Ratnagiri
39.	School of Physical Sciences	Nanded, Maharashtra
40.	School of Tech. & Applied Sciences	Kottayam, Kerala
41.	SDM College	Ujire, Mysore
42.	Sharanabasaveshwar College of Science	Gulbarga
43.	S.N.College	Kollam
44.	Sri Bhuvanendra College	Karkala
45.	St. Edmunds College	Shillong
46.	S.V. College	Aligarh
47.	Swami Shardhanand College	New Delhi
48.	University College	Kurukshetra
49.	University College of Science & Tech.	Kolkata
50.	Vaish College	Rohtak

(C) OTHER INSTITUTIONS – (56)

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.	CCMB	Hyderabad
07.	Centre for Superconductivity research	USA
08.	CSNSM, Orsay Cedex	France
09.	D.M.R.L.	Hyderabad
10.	Dayalbagh Educational Institute	Agra
11.	Defence Laboratory	Jodhpur
12.	Defence Research & Development Orgn.	Dehradun
13.	Genetic Institute of Manufacturing Technology	Singapore
14.	GSI	Germany
15.	Harcourt Butler Technological Institute	Kanpur
16.	ICGEB	New Delhi

17.	I.G.C.A.R.	Kalpakkam
18.	Indian Institute of Science	Bangalore
19.	Indian Institute of Technology	Chennai
20.	Indian Institute of Technology	Kanpur
21.	Indian Institute of Technology	Kharagpur
22.	Indian Institute of Technology	Mumbai
23.	Indian Institute of Technology	New Delhi
24.	Indian Institute of Technology	Roorkee
25.	Indian Space Research Organisation	Bangalore
26.	INFN-LEGNARO	Italy
27.	INMAS	New Delhi
28.	Institute of Basic Sciences	Agra
29.	Institute of Materials Science	Bhubaneswar
30.	Institute of Physics	Bhubaneswar
31.	Institute of Science	Mumbai
32.	IUC-DAEF, Calcutta Centre	Kolkata
33.	IUC-DAEF, Indore Centre	Indore
34.	Joint Inst. of Nuclear Research	Dubna, Russia
35.	KIIT	Bhubaneswar
36.	Massachusetts Inst. of Technology	USA
37.	Malaviya National Institute of Technology	Jaipur
38.	Nanocrystals Technology	USA
39.	National Academy of Science	Allahabad
40.	National Institute of Oceanography	Goa
41.	National Institute of Technology	Kurukshetra
42.	National Institute of Technology	Silchar
43.	National Institute of Technology	Srinagar
44.	National Physical Laboratory	New Delhi
45.	NCCCM/BARC	Hyderabad
46.	NCAOR	Goa
47.	NCSR	France
48.	Oak Ridge National Laboratory	USA
49.	Physical Research Laboratory	Ahmedabad
50.	Saha Institute of Nuclear Physics	Kolkata
51.	Sant Longowal Institute of Technology	Sangrur
52.	SSPL	New Delhi
53.	Tata Institute of Fundamental Research	Mumbai
54.	Thapar Inst. Of Eng. & Technology	Patiala
55.	VECC	Kolkata
56.	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.

M. Sc. Orientation programme is conducted by IUAC to encourage interested students to supplement their knowledge and to motivate them to continue their career in science. However, this programme is not conducted to satisfy the M. Sc. credit requirements of any university department. Due to large number of applicants every year than we can handle, we regret that all applicants may not be selected for project work. The details of some of the projects carried out in various fields in the year 2007-2008 are given below.

Name of student	Affiliation	Project title	Guide/Lab. at IUAC
Ms. Litha Thomas	Calicut University, Kerala	Thickness determination of ^{58}Ni foil by alpha particle energy loss method	Mr. Subir Nath, HIRA Lab.
Ms. Jerin Paul K.	Calicut University, Kerala	Study of alpha radiation using PHOENIX	Mr. B. P. Ajith Kumar, Electronics Lab
Ms. Aarti Tewari	Banasthali Vidyapith	Development and Analysis of Gaseous Ion Beam using Electron Cyclotron Resonance source based Low Energy Ion Beam Facility	Ms. P. S. Lakshmy, LEIBF lab
Ms. Jagrati Sahariya	Banasthali Vidyapith	Study of Sputter Ion Source in Ion Source Test Bench	Ms. K. Devarani Devi, Pelletron lab
Mr. Pareshkumar M. Prajapati	M. S. University, Baroda	Testing of Clover Detector Modules	Mr. Rakesh Kumar, GDA/INGA lab
Ms. Roshnee Sahoo	Utkal University, Orissa	ERDA Telescope Detector	Mr. Saif Ahmad Khan, Materials Science lab
Ms. Riddhi H. Kadrekar	Mumbai University	Study of two-dimensional position sensitive silicon detector	Mr. Subir Nath, HIRA lab
Mr. Shailesh Surve	Mumbai University	Study of the non-linearity of high resolution ADC using clover detectors	Mr. R. P. Singh, GDA/INGA lab

6.3 LIBRARY

Priyambada Nayak

Salient features

Working hours:	Round the clock, all days of the week
Total Books:	~2580 (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 2007-08:	35
Current Journals:	54
New Journals added in 2007-08:	01
Bound Journals:	~7500
Laboratory Reports:	~900 (from nearly 50 labs)
New Reports arrived in 2007-08:	30
Reprints/Photocopies:	~700
Newsletters, House magazines etc:	50
Databooks, Manuals etc.:	~550
Ph.D. Thesis:	107
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
Clientele:	Apart from IUAC staff and students, the library is consulted by students, teaching and research staff from over 100 academic and research institutions in 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. Web-based OPAC and library cataloging software package has been installed for the computerisation of library documents. The catalog of books, Ph.D. Thesis, Manuals, and Conference Proceedings are already computerised 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 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 has been installed.

6.4 THE PHD TEACHING PROGRAMME

A. Mandal

The two semester Ph.D programme for research students of IUAC, outside university students and for new scientist trainees of IUAC continued to run well during this year. Overwhelming response from different universities shows the positive benefit of the programme to the community of students starting fresh research at different universities throughout the country. The programme consists of two semesters- one during January-May in which courses on Experimental Physics and Accelerator Physics are offered and the second one during August-December in which courses on Computers in instrumentation and data acquisition and advanced course on Material sciences were offered. Each course consists of five modules. Each module consists of 8 lectures of one and half our duration and the credit awarded is 1.0. One course on Engineering Drawing is also offered as a part of the Experimental Physics to give basic understanding of drawing. About 20 students from different universities, colleges participated in each module. Ten students from School of Physical sciences, JNU attended the course on Experimental Physics. In addition three JRFs of IUAC also attended the course.

Some special lecture series on Nuclear Physics, Basic Atomic Physics and Semiconductors by eminent professors in the respective field were also offered this year. A large number of students attended these special lecture series and they appreciated the subject contents and teaching.

One month before each semester a poster containing details of the course is printed and circulated to physics department of various universities and colleges inviting application for attending to the courses. The programme is also put into our website. Accommodation and TA/DA are provided to the selected participants.

6.5 ACADEMIC ACTIVITIES HELD IN 2007-08

26-27 th April	Conference on Accelerator and Low Level Radiation Safety (Contact Persons: S.P.Lochab & R.G. Sonkawade, IUAC)
6-7 th July	User Workshop : Accelerator Users Presentations for beam time proposals
8 th July	42 nd AUC Meeting
20 th July	Acquaintance Programme at Raipur, Chhattisgarh (Contact Person: S. Muralithar, IUAC)

2 nd August	IUAC Ph.D Teaching Programme, Fall Semester starts
8-10 th August	IUAC Academic Workshop
17 th August	Acquaintance Programme at Dharwad, Karnataka (Contact Persons: N.M. Badiger, Karnataka University and A. Sarma, IUAC)
30-31 st August	Workshop on Nuclear Physics with Beam Hall – II Facilities (Contact Persons: N. Madhavan and S. Muralithar, IUAC)
17 th -18 th September	Workshop on Materials Science with Swift Heavy Ions (Contact Person: A. Tripathi, IUAC)
23 rd -28 th September	International Conference on Ion Beam Analysis at Hyderabad University (Contact Persons: A.P. Pathak, Hyderabad University and D.K. Avasthi, IUAC)
5 th October	Workshop on AMS (Contact Person: S. Chopra, IUAC)
19-24 th November	Intensive School on Cryogenics, Vacuum and Low Temperature Measurement (Contact Person: T.S. Datta, IUAC)
17-18 th December	USER Workshop : Accelerator Users Presentations for Beam Time Proposals
19 th December	Foundation Day and 43 rd AUC Meeting
14 th January, 2008	IUAC Ph.D. Teaching Program, Spring Semester starts (Contact Person: A.M. Mandal, IUAC)
8 th February	Acquaintance Programme at NIT Silchar (Contact Persons: S.S. Nath, Silchar & D.K. Avasthi, IUAC)
11 th -12 th February	IUAC Academic Workshop
28 th February	National Science Day at IUAC (Contact Persons: K. Asokan & D. Sen, IUAC)

6.6 FORTHCOMING EVENTS: 2008

30 th April	Acquaintance Programme at Jalgaon, Maharashtra (Contact Persons: P.P. Patil, NM University & Ravi Kumar, IAUC)
29 th -30 th June	School on Optical Characterization (Contact Person: Fouran Singh, IUAC)
6 th -7 th July	User Workshop: Accelerator Users' Presentations for Beam Time Proposals
8 th July	44 th AUC Meeting
4 th August	IUAC Ph.D Teaching Programme, Fall Semester starts (Contact Person: A.M. Mandal, IUAC)

11 th -13 th August	IUAC Academic Workshop
25 th August	Workshop on Accelerator Based Research on Polymer Science (Contact Person: A. Tripathi, IUAC)
19 th September	Acquaintance Programme at Pondicherry (Contact Person: S. Chopra, IUAC)
1 – 21 st September	SERC School on Nuclear Physics (Contact Person: R.K. Bhowmik, IUAC)
16 th -17 th October	Workshop on Radiation Biology (Contact Person: A. Sarma, IUAC)
21 st November	Acquaintance Programme at Rourkella, Orissa
17 th -18 th December	User Workshop : Accelerator Users' Presentations for Beam Time Proposals
19 th December	Foundation Day & 45 th AUC Meeting

6.7 LIST OF SEMINARS CONDUCTED IN THE YEAR 2007-08

S.No	Date	Title	Name & Affiliation
1.	14.05.07	Relativistic Heavy Ion Collisions and Search for quark gluon plasma	Dr. D.K. Srivastava VECC, Kolkata
2.	21.5.07	Ultra intense laser plasma interaction studies at RRCAT	Dr. P.D. Gupta, RRCAT, Indore
3	06.08.07	Langevin simulation of mass asymmetry relaxation in heavy ion induced fission	Dr. GV Ravi Prasad, IOP, Bhubaneswar
4	11.9.07	Study of Nuclear reactions with rare isotope beams	Dr. Dhruva Gupta, VECC, Kolkata
5	1.10.07	Study of r-process and rp-process nuclei at canadian penning trap mass spectrometer	Dr. Hariprakash Sharma BHU, Varanasi
6	9.10.07	Production of the radioactive beam of neutron rich nuclei CARIBU project at ANL	Dr. Hariprakash Sharma BHU, Varanasi
7	24.10.07	Spin filtering of hot electrons and hot holes in metallic ferromagnets	Dr. Tamalika Banerjee Univ. of Twente, Netherland
8	1.11.07	Weight of the cosmic vacuum	Prof. T. Padmanabhan IUCAA, Pune

9	2.11.07	New results from the rising campaigns shell structure and isospin studies in exotic nuclei	Prof. H.J. Wollershiem GSI, Germany
10	6.11.07		Dr. C.R. Prahraj IOP, Bhubaneswar
11	30.11.07	What is new in RF superconductivity for accelerators	Dr. Amit Roy, IUAC
12	6.12.07	Some tricks of the nature	Prof. Mitja Rosina Josef Stefan Institut, Ljubljana, Slovenia
13	20.12.07	Current Progress in laser spectroscopy experiments at GSI & future possibilities at GSI and fair	Dr. Wilfried Nortershauser Institut für Kerchemie, JGU, Mainz
14	21.12.07	Frontiers in nanomaterials and nanotechnology	Prof. Jagdish Narayan North Carolina State Univ.,
15	31.12.07	Proton Beam for radiotherapy and radiation research at the JINR, Dubna Phasotron	Dr. A.G Molokanov Joint Institute for Nuclear Research Dubna, Russia
16	1.1.08	Power of LHC front end electronics & arctic warming	Dr. Satish Dhawan, Yale Univ., USA
17	7.1.08	Current research in radioactive beam physics	Prof. Kirby W. Kemper Florida State Univ, USA
18	11.1.08	Scientific opportunities at TRIUMF—— ——ISAC	Dr. Dipa Bandyopad- hyay, TRIUMF, Canada
19	18.1.08	Exotic Quantal rotation in nuclei chairlity & octupole ccondensation	Prof. Umesh Garg Univ, of Notredam
20	21.1.08	Precision measurements in nuclear physics toward a complete theory of fundamental interactions	Dr. Smarajit Triambak Univ., of Guelph & Triumf, Canda
21	22.1.08	Surface structure and chemical effects on low energy ion beam induced nanostructure formation at surfaces	Dr. Subhendu Sarkar IMEC, leuven, Belgium
22	25.1.08	Spiral-II	Dr. S. Gales GANIL, France

23	25.1.08	Event reconstruction & particle identification in large acceptance modern spectrometers	Mr. P. Sugathan, IUAC, New Delhi
24	29.1.08	Synchrotron Radiation facilities in Japan & China	Prof. Makoto Watanabe Shanghai Dianji Univ.,
25	4.2.08	Superconducting performance of pure substituted (AL, C) and nanoparticle (Nano diamond Nano SIC, Nano-C) added MGB ₂	Dr. VPS Awana NPL, New Delhi
26	11.2.08	Molecules in cool cosmic objects	Dr. Suresh Chandra SRTM univ, Nanded, Maharashtra
27	14.2.08	The world highest luminosity collider KEK B-factory “Present status and future plan”	Dr. Shigeki Kato KEK Lab, Japan
28	18.2.08	Er Doped silica based glasses towards a photosensitization process through the interaction with metal aggregates	Dr. Enrico Trave Univ of Padova, Padova, Italy
29	3.3.08	A review of the theory of low energy nuclear reactions	Prof. Yogendra Srivastava Univ. of Perugia, Italy
30	12.3.08	ILC & GDE Effort for technical design phase (TDP)	Prof. Akira Yamamoto KEK, Japan & Dr. Marc Ross, Fermilab USA
31	17.3.08	Beam dynamics studies for the proposed international linear collider Project	Dr. Kirti Ranjan Delhi Univ.,
32	28.3.08	The nuclear mean field Vs. elementary nucleon-nucleon collisions in heavy ion dynamics below 100 MeV nucleon	Prof. Zoran Basrak Zagreb, Croatia

6.8 LIST OF PUBLICATIONS (2007-2008)

A. NUCLEAR PHYSICS

1. **Shell model study of pairing correlations**, J.A.Sheikh, P.A.Ganai, R.P.Singh, R.K.Bhowmik, S.Frauentorf, Phys.Rev. C 77, 014303 (2008).
2. **Bandcrossing of magnetic rotation bands in ¹³⁷Pr**, P.Agarwal, S.Kumar, S.Singh, R.K.Sinha, A.Dhal, S.Muralithar, R.P.Singh, N.Madhavan, R.Kumar, R.K.Bhowmik, S.S.Malik, S.C.Pancholi, L.Chaturvedi, H.C.Jain, A.K.Jain, Phys.Rev. C 76, 024321 (2007).

3. **Experimental study of shape coexistence in ^{189}Tl** , S.K.Chamoli, R.Kumar, I.M.Govil, P.Joshi, R.P.Singh, S.Muralithar, R.K.Bhowmik, Phys.Rev. C 75, 054323 (2007).
4. **Multiparticle M1 band in ^{134}La** , V.Kumar, P.Das, R.P.Singh, R.Kumar, S.Muralithar, R.K.Bhowmik, Phys.Rev. C 7014309 (2007).
5. **Shape coexistence and high spin states in ^{52}Cr** , R.Kumar, S.K.Chamoli, I.M.Govil, A.Dhal, R.K.Sinha, L.Chaturvedi, Z.Naik, C.R.Praharaj, S.Muralithar, R.P.Singh, N.Madhavan, P.Sugathan, J.J.Das, R.K.Bhowmik, Phys.Rev. C 76, 034301 (2007).
6. **Indication of the onset of collectivity in ^{30}P** , I.Ray, M.R.Basu, R.Kshetri, M.S.Sarkar, S.Sarkar, P.Banerjee, S.Chattopadhyay, C.C.Dey, A.Goswami, J.M.Chatterjee, A.Mukherjee, S.Bhattacharya, B.Dasmahapatra, P.Datta, H.C.Jain, R.K.Bhowmik, S.Muralithar, R.P.Singh, Phys.Rev. C 76, 034315 (2007).
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7. **Formation of the circular Rydberg states in ion-solid collisions**, T. Nandi, Astrophys. J. Lett., 673, L103 (2008).

6.9 LIST OF TECHNICAL REPORTS / TECHNICAL MEMOS (2007-08)

A. LIST OF TECHNICAL REPORTS				
Sl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
1	Quad Timing Filter Amplifier module	S. Venkataramanan, Arti Gupta, S. Murlithar	Instrumentation	IUAC/TR/SV/2007-08/01
2	Digital Temperature Monitor and Control System for HTS-ECRIS	Yaduvansh Mathur, UK Rao	Instrumentation	IUAC/TR/YM/2007-08/02
3	Design of 10kV Power supply	UK Rao, Y. Mathur, P. Barua, CP Safvan, D. Kanjilal	Instrumentation	IUAC/TR/UKR/2007-08/03
4	High Energy Sweeper Controller	A. Sarkar & R.K. Bhowmik	Accelerator	IUAC/TR/AS/2007-08/04
5	FPGA based 13 bit Analog to Digital Converter using Sliding Scale Technique	VVV Satyanarayana, Ruby Santhi, BP Ajith Kumar	Instrumentation	IUAC/TR/VVVS/2007-08/05
6	Gate & Delay Generator	VVV Satyanarayana	Instrumentation	IUAC/TR/VVVS/2007-08/06
7	Micro Controller Based CAMAC Magnet Field Control Module	Ruby Santhi & Ajith Kumar B.P	Instrumentation	IUAC/TR/RS/2007-08/07
8	RF Preamplifier for Phase Detector	S. Venkataramanan	Instrumentation	IUAC/TR/SV/2007-08/08
9	Testing of scanner and Steerer Magnet	Sarvesh Kumar, A. Mandal	Beam Transport Lab.,	IUAC/SK/TR/2007-08/09
10	Beam Optics for LEIBF	Sarvesh Kumar, P.Barua, A. Mandal	Beam Transport Lab.,	IUAC/TR/SK/2007-08/10

Sl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE
11	Fabrication of Spark Counter Modules	Sarvesh Kumar, A. Mandal	Beam transport Lab.,	IUAC/SK/TR/2007-08/11
12	Design of Quadrupole Magnet for HCI	Sarvesh Kumar, SK Saini, A Mandal	Beam Transport Lab.,	IUAC/TR/SK/2007-08/12
13	Design of a Switching Magnet for LEIBF	Sarvesh Kumar, A. Mandal	Beam Transport Lab.,	IUAC/TR/SK/2007-08/13
14	Assembling and performance of old purifier	RS Meena, Manoj Kr, A. Choudhary, S.Babu, S.Kar, J. Chocko, T.S Data	-	IUAC/TR/RSM/2007-08/14
15	Shaping Amplifier for Neutron Detector Array	Arti Gupta, S. Venkataraman, KS Golda, RK Bhowmik	Instrumentation	IUAC/TR/AG/2007-08/15
16	Repairing of UHV Sample Manipulator (Goniometer)	Ashok Kothari, Rajeev Ahuja, ET Subramaniyam, Mamta Jain, SA Khan	-	IUAC/TR/AK/2007-08/16
17	Pressure Transmitters for Monitoring & Data Acquisition in Cryogenic Control Room	Manoj Kumar/ R.S Meena/ A. Choudhury	-	IUAC/TR/MK/2007-08/17
18	The first successful test of the complete super conducting linear accelerator with single accelerating module	S. Ghosh, R. Mehta, G.K. Chowdhury, A. Rai, P. Patra, B.K. Sahu —etal	Accelerator	IUAC/TR/SG/2007-08/18
19	A report on up gradation of the LN2 plant at IUAC, New Delhi	Suresh.B, T.S Datta, Joby, Manoj, S.Kar Anup.C, Jacob, ARoy	Instrumentation	IUAC/TR/SB/2007-08/19
20	Report on performance test of vortex tube developed	Suresh Babu, T.S. Datta	Instrumentation	IUAC/TR/SB/2007-08/20

B. LIST OF TECHNICAL MEMOS				
Sl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE
1	Repairing of Traveling wave Tube Amplifier	UK Rao, GO Rodrigues & D. Kanjilal	Instrumentation	IUAC/TM/UKR/ 2007-08/01
2	Repairing of Lakshore Temperature Controller of DLTS in LEIBF	UK Rao, Y. Mathur, Sugam Kumar, CP Safvan & D. Kanjilal	Instrumentation	IUAC/TM/UKR/ 2007-08/02
3	Troubleshooting of High Voltage Deck Power Supply in LEIBF	Y. Mathur, UK Rao, GO Rodrigues, P. Kumar, P.S Lakshmy	Instrumentation	IUAC/TM/YM/ 2007-08/03
4	Repairing of Radiation Monitors	Birender Singh, SP Lochab, Rajan Joshi	Health Physics	IUAC/TM/BS/ 2007-08/04
5	Identification and rectification of problem in the cooling unit of insitu x-ray diffractometer system	P.K Kulriya, A. Tripathi	Material Science	IUAC/TM/PKK/ 2007-8/05

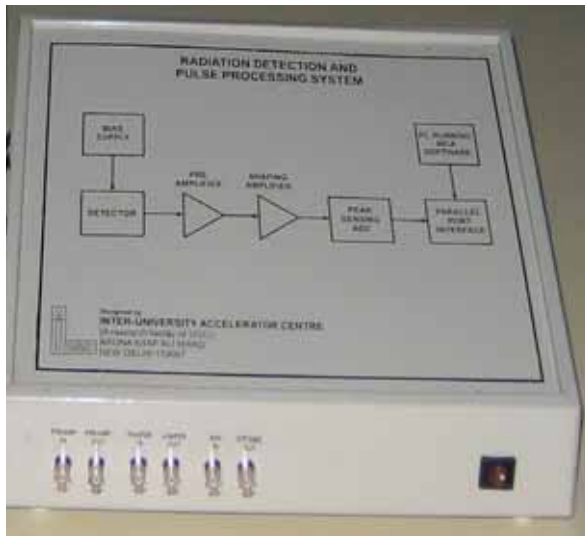
6.10 TEACHING LAB. ACTIVITIES

Paramanand Singh, V.V.V.Satyanarayana, B.P. Ajithkumar and K.Asokan.

As a part of Teaching Lab. activities, three one-week workshops on “Physics with Homemade Equipments and Innovative Experiments (Phoenix)” were organized at IUAC and five workshops were conducted at various institutions all over India. The objective of this on-going program is to provide the basics of interfacing signals to a computer for carrying out physics lab experiments and some data analysis techniques. This programme targets to attract young faculties working in various colleges and universities, preferably handling M.Sc. (Physics) labs.

6.10.1 Fabrication of Radiation Detection & Analysis systems

We have fabricated a small module, containing a charge sensitive preamplifier, shaping amplifier and peak sensing ADC that can be connected to the parallel port of a PC. In this connectors are provided which are combinable and also individually to each sections. Apart from this, a 1 sq cm solar cell is used as an alpha and fission fragment detector. Several such units have been distributed to different universities. This year about eight modules have been fabricated.



6.10.2 Development of Add-on cards to Phoenix

The following experiments are now converted into wired PCBs as an Add-on cards to Phoenix to avoid the difficulties during experiments:

- a. 555 Astable Oscillator
- b. 555 Monoshot multivibrator
- c. Radiation Detection & analysis system
- d. Measuring velocity of sound etc.