

6. ACADEMIC ACTIVITIES

6.1 PELLETRON BEAM UTILIZATION BY USERS

6.1.1 Pelletron Beam Time Utilization and Experiments performed (April 2008 - March 2009)

Users	No. of shifts allotted	Projects in			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic Phys. / AMS
A. Universities / Colleges					
Agra University	3		1		
Allahabad University	11	1	1		
AMU, Aligarh	3		1		
Andhra University	19	2			
Anna University	6		2		
Bangalore University	6		2		
Bharatidasan University	3		1		
BHU, Varanasi	7		3		
Calicut University	15	1			
DAV, Jalandhar	1		1		
Delhi University	27	1	2		
Gauhati University	2		1		
GNDU, Amritsar	7		3		
HNB University, Garwal	3		1		
HP University	2		1		
Hyderabad University	4		1		
JMI, New Delhi	3		1		
JNU, New Delhi	2		1		
Kalyani University	2			1	
Kurukshetra University	5		2		
Kuvempu University	3		1		
Manipur University	2		1		
Marathwada University	2		1		
MSU, Tirunelveli	3		1		
MSU, Vadodara	21	1	2		
Mumbai University	6		2		
Mysore University	4		2		
Padova University, Italy	3		1		
Pune University	2		1		
Punjab University	23	2			
Rajasthan University	13		5		
Tezpur University	4		2		
Utkal University	6		2		
WBUT, West Bengal	2			1	

Users	No. of shifts allotted	Projects in			
		Nuclear Physics	Materials Science	Radiation Biology	Atomic Physics/AMS/others
B. Institutions					
BARC, Mumbai	13	1	1	1	
CSNSM, France	2		1		
Dayalbagh Inst., Agra	7		3		
GSI, Germany	18	1			
IIT, Delhi	10		4		
IIT, Kharagpur	10	1	1		
IIT, Mumbai	3		1		
IIT, Roorkee	8	1			
Institut Neel, CNRS	3		1		
ISRO	9		2		
IUAC, New Delhi	47	2	6	1	
IUC, Indore	6		2		
IUC, Kolkata	16	2			
PRL, Ahmedabad	9				1
SINP, Kolkata	45	4			
TIFR, Mumbai	8	1			
VECC, Kolkata	20	2			
C. Facility tests	57				
Total	516	23	68	4	1

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 (GGSIPO)	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	Salem
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 - (51)

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.	DAV College	Jalandhar
13.	DBS College	Dehradun
14.	Doodhsakhar Mahavidyalaya	Bidri, Maharashtra
15.	Ewing Christian College	Allahabad
16.	Govt. Art College	Rajamundri, Andhra Pradesh
17.	Govt. College	Ajmer
18.	Govt. College	Mehendragarh
19.	Govt. College	Kota
20.	Govt. MSJ College	Bharatpur
21.	Goyalpara College	Goyalpara, Assam
22.	Gurudas College	Kolkata
23.	Jai Hind College	Mumbai

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

(C) OTHER INSTITUTIONS – (57)

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	Raurkela
43. National Institute of Technology	Silchar
44. National Institute of Technology	Srinagar
45. National Physical Laboratory	New Delhi
46. NCCCM/BARC	Hyderabad
47. NCAOR	Goa
48. NCSR	France
49. Oak Ridge National Laboratory	USA
50. Physical Research Laboratory	Ahmedabad
51. Saha Institute of Nuclear Physics	Kolkata
52. Sant Longowal Institute of Technology	Sangrur
53. SSPL	New Delhi
54. Tata Institute of Fundamental Research	Mumbai
55. Thapar Inst. Of Eng. & Technology	Patiala
56. VECC	Kolkata
57. 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. In order to provide chance for students from various universities, students from the same universities may be given lesser priority for consideration in successive years.

The details of some of the projects carried out in various fields in the year 2008-2009 are given below.

Student	Affiliation	Project title	Guide/Lab. at IUAC
Alokesh Das	Delhi University	Deposition of Gold film on glass substrate & Study of surface topography and optical absorption	Saif Ahmad Khan, Materials Science Lab
Arun Kumar Awasthi	University of Allahabad	Synthesis of gold-polymer nanocomposite thin film by atom beam co-sputtering	Ambuj Tripathi, Materials Science lab
Kamini	Banasthali University	Ion detection in Accelerator Mass Spectrometry	Pankaj Kumar Baghel, AMS lab
Neena Devi	Banasthali University	Familiarization of high temperature superconducting ECR ion source and production of Ar ⁸⁺ beam	G. O. Rodrigues and P. S. Lakshmy, ECR lab
Rashi Talwar	Delhi University	Testing of fast multiwire proportional counter and BaF ₂ detector	Akhil Jhingan, Detector Lab
Rohan Mittal	Devi Ahilya Vishwavidyalaya, Indore	RF measurements of prototype Drift Tube Linac (DTL)	Sugam Kumar, RFQ/DTL lab
Sonika Thakur	GNDU, Amritsar	Preparation and characterization of thin target for nuclear physics experiment	J. J. Das, HIRA/Target lab
Sushil Kumar Sharma	Delhi University, Delhi	Characteristics of Clover detector	Rakesh Kumar, GDA/INGA lab
Vibha Chopra	GNDU, Amritsar	Testing of a two-dimensional position sensitive detector using alpha source	Subir Nath, HIRA/HYRA Lab

6.3 LIBRARY

Priyambada Nayak

Salient features

Working hours:	Round the clock, all days of the week
Total Books:	~2660 (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 2008-09:	80
Current Journals :	54
Bound Journals:	~7500
Laboratory Reports:	~900 (from nearly 50 labs)
New Reports arrived in 2008-09:	30
Reprints/Photocopies:	~700
Newsletters, House magazines etc:	50
Databooks, Manuals etc.:	~550
Ph.D. Thesis:	116
Microfilm Collection:	IEEE Transactions on Nuclear Science Vol. 1-32 (1954-85)
Hardware:	Cyril 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 computerization of library documents. The catalog of books, Ph.D. Thesis, Manuals, 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-texts of a number of journals are now accessible. Apart from the print journals, PROLA and IOP journal archive (online), SCIENCE DIRECT, IEEE Xplore are also being subscribed by the library. The library is also a member of UGC-INFONET, INDEST-AICTE Consortium and more than 200 journals are being accessed on-line through these facilities. 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 univeristies throughout the country. The programme consits of two semesters- one during January-May in which courses on Experimental Physics and Accelerator Physics are offered aand 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 consits 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. Three students from School of Physical sciences, JNU attended the course on Experimental Physics. In addition two JRFs of IUAC also attended the course.

Some special lecture series on Nuclear Physics, Basic AtomicPhysics and Nonlinear optics 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 2008-09

30th Apr.08	Acquaintance programme at Jalgaon, Maharashtra (Contact Persons: P.P. Patil, NM Univ. & Ravi Kumar, IAUC)
30th June (upto July 2)	School on Optical Characterization (Contact Person: Fouran Singh, IUAC)

6th-7th July	User Workshop – Accelerator Users’ Presentations
8th July	44th AUC Meeting
4th August	IUAC Ph.D Teaching Programme, Fall Semester starts (Contact Person: A.M. Mandal, IUAC)
11 -13th Aug.	IUAC Academic Workshop
25th August	Workshop on Accelerator Based Research on Polymer Science (Contact Person: A. Tripathi, IUAC)
1st -20th Sept.	SERC School on Nuclear Physics (Contact Person: R.K. Bhowmik, IUAC)
13-14th Oct.	Workshop on Radiation Biology (Contact Person: A. Sarma, IUAC)
21st Oct.	Acquaintance Programme at Pondicherry (Contact Person: S. Chopra, IUAC)
21st Nov.	Acquaintance Programme at Rourkella, Orissa
17-18th Dec.	User Workshop – Accelerator Users’ Presentations
19th Dec.	Foundation Day & 45th AUC Meeting
14th Jan.,09	Ph. D programme, Spring semester starts
10-13th Feb.	DAE-BRNS Symposium on Atomic, Molecular and Optical Physics (Convener: A. Roy, IUAC)
17-18th Feb.	IUAC Academic Workshop
26th Feb.	Indo-French Conference on nano structuring by ion beams at Bhubaneswar (Contact persons : D.K. Avasthi, IUAC & J.C. Pivin , CSNSM, Orsay)
28th Feb.	National Science Day (Contact person : K. Asokan, IUAC)
18th March	Workshop on Surface & Interface (Contact person : A. Tripathi, IUAC)

6.6 FORTHCOMING EVENTS: 2009

27 th Apr. -May 2	Workshop on Innovative Experiments (Contact person : B. P. Ajithkumar, IUAC)
12-13th May	Workshop on Oxide materials at Aligarh (Contact person : Ravi Kumar, IUAC)
29th -30th May	Physics with HYRA (Contact person : N. Madhavan, IUAC)
6th -7th July	User Workshop : Accelerator users’ presentations
8th July	46th AUC meeting

9th -10th July	LEIBF Workshop (Contact person : Pravin Kumar, IUAC)
3rd August	Ph.D programme, Fall semester starts
10th -12th August	IUAC Academic Workshop
28th August	Acquaintance Programme at Hissar (Contact person : S. Chopra , IUAC)
14th -18th Sep.	School on Radiation Biology (Contact person : Asiti Sarma, IUAC)
21st -26th Sep.	Workshop on Innovative Experiments (Contact person : B.P. Ajithkumar, IUAC)
23rd October	Acquaintance Programme at Udaipur (Contact person : Rajeev Mehta, IUAC)
30th October	Workshop on Simulation Studies and Large Scale Computing (Contact person : S. Mookherjee, IUAC)
13th November	Acquaintance Programme at Vellore (Contact person : S. Muralithar, IUAC)
18th -20th November	Conference on Low background Radiation measurement (Contact person : R.G. Sonkawade, IUAC)
17th -18th December	User Workshop : Accelerator users' presentations
19th December	Foundation Day & 47th AUC meeting

6.7 LIST OF SEMINARS CONDUCTED IN THE YEAR 2008-09

Date	Title	Name & Affiliation
10-04-2008	Principle and applications of electron beams produced with laser plasma accelerators	Dr. Victor Malka (Laboratoire d'Optique Appliquee LOA) ENSTA, CNRS, Ecole Polytechnique, FRANCE
11-04-2008	Lifetime of SF ₆ Anion	Dr. Jyoti Rajput Department of Physics and Astronomy, University of Aarhus, Denmark
16-04-2008	Ten years heavy ion therapy at GSI- the advantages of carbon ions for tumor therapy	Prof. Gerhard Kraft Biophysics Department GSI, Germany
25-04-2008	Material aspects of niobium superconducting RF Cavity	Dr. S. B. Roy RRCAT, Indore
13-05-2008	Direct method analysis of surface alloying using surface X-ray diffraction (SXRD)	Dr. S. S. Parihar University of Wisconsin-Milwaukee, USA

14-06-2008	My experiences as a polar woman at India's Maitri station, Antarctica	Dr. (Mrs.) Devyani Borole Goa
01-08-2008	Demonstration of 3D electromagnetic simulations- OPERA	Mr. Christopher Peter Riley Vector Fields, UK
04-08-2008	A report on European Particle Accelerator Conference (EPAC)-2008 and a brief overview on the accelerator facility of CERN	Mr. Subhendu Ghosh IUAC
05-08-2008	The SARAF CW 40 MeV Proton / Deuteron accelerator and applications	Dr. Ami Nagler Soreq Applied Research Accelerator Facility, Israel
28-08-2008	Beam tracking detectors	Ms. Farheen Naqvi Institute fuer Kernphysik University of Cologne
04-09-2008	Fluorescence properties of Al, Cu, Fe & Ag nanoparticles	Dr. Om Prakash Siwach SPS, JNU
29-09-2008	Carbon: The material and its characterization by Raman Spectroscopy	Dr. S. N. Behera Institute of Materials Science, Bhubaneswar
07-10-2008	Coulomb excitation at GSI/ IUAC and recent RISING results	Prof. Hans Juergen Wollersheim GSI, Germany
10-11-2008	Triaxial strongly deformed shapes in nuclei	Prof. Wenchao Ma Mississippi State University, USA
24-11-2008	Quantum classical duality	Prof. Afsar Abbas Jamia Milia Islamia University New Delhi
10-12-2008	Nanotechnology of transition metal-fullerene composites	Dr. Jiri Vacik Nuclear Physics Institute Academy of Sciences of the Czech Republic
16-12-2008	HYRA: Milestones reached and the road ahead	Mr. N. Madhavan IUAC
22-12-2008	Nanoscience and nanotechnology: Emerging Frontiers	Prof. Jagdish Narayan, North Carolina State University
29-01-2009	Good news from the Sun: High energy particles from the solar corona	Prof. Yogendra Srivastava Professor of Physics, University of Perugia & INFN, Perugia, Italy
30-01-2009	New layout & beam optics for high current injector project	Dr. Ajithkumar B.P. IUAC, New Delhi
02-02-2009	Indigenous technology in a globalized world: an STM as illustration	Prof. Deshdeep Sahdev, IIT, Kanpur

05-03-2009	Gamma ray spectroscopy programs at Tohoku University	Prof. Takeshi Koike, Tohoku University, Japan
06-03-2009	Track formation and the inelastic thermal spike model : Role of the electron-phonon mean free path	Prof. M. Toulemonde (Laboratoire CIMAP, ENSICAEN, Univ. Caen, CEA, CNRS)
09-03-2009	Radio implants for medical applications	Dr. Walter Assman (Department fuer Physik, LMU Muenchen)
25-03-2009	Design of new low energy ion beam facility	Mr. Sarvesh Kumar, IUAC

6.8 LIST OF PUBLICATIONS (2008-2009)

A. NUCLEAR PHYSICS

- Role of nuclear dissipation and entrance channel mass asymmetry in pre-scission neutron multiplicity enhancement in fusion-fission reactions**, H.Singh, K.S.Golda, S.Pal, Ranjeet, R.Sandal, B.R.Behera, G.Singh, A.Jhingan, R.P.Singh, P.Sugathan, M.B.Chatterjee, S.K.Datta, A.Kumar, G.Viesti, I.M.Govil, Phys.Rev. C 78, (2008) 024609.
- Multi-quasiparticle bands in ^{137}Ce** , T.Bhattacharjee, S.Chanda, A.Mukherjee, S.Bhattacharyya, S.K.Basu, S.S.Ghugre, U.D.Pramanik, R.P.Singh, S.Muralithar, N.Madhavan, J.J.Das, R.K.Bhowmik, Phys.Rev. C 78, (2008)024304.
- Abrupt change of rotation axis in ^{109}Ag** , P.Datta, S.Roy, S.Pal, S.Chattopadhyay, S.Bhattacharya, A.Goswami, M.S.Sarkar, J.A.Sheikh, Y.Sun, P.V.Madhusudhana Rao, R.K.Bhowmik, R.Kumar, N.Madhavan, S.Muralithar, R.P.Singh, H.C.Jain, P.K.Joshi, Amita, Phys.Rev. C 78, (2008)021306.
- Spin-distribution measurement: A sensitive probe for incomplete fusion dynamics**, P.P.Singh, B.P.Singh, M.K.Sharma, Unnati, R.Kumar, K.S.Golda, D.Singh, R.P.Singh, S.Muralithar, M.A.Ansari, R.Prasad, R.K.Bhowmik, Phys.Rev. C 78, (2008) 017602.
- Influence of incomplete fusion on complete fusion: Observation of a large incomplete fusion fraction at $E \approx 5-7$ MeV/nucleon**, P.P.Singh, B.P.Singh, M.K.Sharma, Unnati, D.P.Singh, R.Prasad, R.Kumar, K.S.Golda, Phys.Rev. C 77, (2008)014607.
- Shell model study of pairing correlations**, J.A.Sheikh, P.A.Ganai, R.P.Singh, R.K.Bhowmik, S.Frauendorf, Phys.Rev. C 77, (2008)014303.
- Enhanced strength of the $2^+_{1} \rightarrow 0^+_{g.s.}$ transition in ^{114}Sn studied via Coulomb excitation in inverse kinematics**, P.Doornenbal, P.Reiter, H.Grawe, H.J.Wollersheim,

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C. OTHERS

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6.9 LIST OF TECHNICAL REPORTS / TECHNICAL MEMOS (2008-09)

A. LIST OF TECHNICAL REPORTS				
Srl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
1	Technical Report of Charge Sensitive Preamplifier for Neutron Detector Array	Arti Gupta, S. Venkatramanan, Golda K.S., R.K. Bhowmik	Instrumentation	IUAC/TR/AG/2008-2009/01
2	Viewing of Low Intensity, Low Energy Heavy Ion Beams on Quartz	P. Kumar, D.K. Mishra and D. Kanjilal	Accelerator	IUAC/TR/PK/2008-2009/02
3	Development of Silicon Ion Beam using ECR plasma	P. Kumar ,G.O. Rodrigues and D. Kanjilal	Ion Sources	IUAC/TR/PK/2008-2009/03
4	Performance test of QWR # 6 with slow-tuner in the test cryostat	Ashutosh Pandey, S.Ghosh, R.Mehta, B.K. Sahu, G.K.Chaudhary, A.Rai, P.Patra, D.S. Mathuria, J.Chacko, A.Choudhury, S.Kar, S.Babu, M.Kumar, S.S.K. Sonti, K.K.Mistry, J. Zacharias, P.N. Prakash, T.S. Datta, D.Kanjilal	Accelerator	IUAC/TR/AP/2008-2009/04
5	UPS and LT panels for Liquid Helium plant	U.G. Naik, Raj Kumar	Instrumentation	IUAC/TR/UGN/2008- 2009/05
6	Upgradation of MIS Automation	U.G. Naik, Raj Kumar	Instrumentation	IUAC/TR/UGN/2008-2009/06
7	Report on Energy Consumption	U.G. Naik, Raj Kumar	Instrumentation	IUAC/TR/UGN/2008-2009/07
8	The stability test of the room temperature pulsing system of IUAC	S.Ghosh, R.Mehta, A.Rai, P.Patra, B.K.Sahu, et al.	Accelerator	IUAC/TR/SG/2008-2009/08

Srl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
9	PKDELIS Control System Installation	Y. Mathur, U.K. Rao, R.N. Dutt, G.O. Rodrigues & P.S. Lakshmy	Instrumentation	IUAC/TR/YM/2008-2009/09
10	Drive Probe Controller	D.S.Mathuria, Joby Antony, B.K. Sahu	Instrumentation	IUAC/TR/DSM/2008-2009/10
11	Technical Report on 200W RF Driver Power Amplifier	S.Venkataramanan, Rajesh Kumar, RajKumar, Paramanand Singh, S.K.Saini, Zimson Zacharias,	Instrumentation	IUAC/TR/SV/2008-2009/11
12	Performance test of QWR # I-2 with slow-tuner in the test cryostat	Ashutosh Pandey, S.Ghosh, R.Mehta, B.K. Sahu, G.K.Chaudhary, A.Rai, P.Patra, D.S.Mathuria, S.S.K.Sonti, K.K.Mistry, P.N.Prakash, T.S.Datta, D.Kanjilal	Accelerator	IUAC/TR/AP/2008-2009/12
13	Performance test of QWR # 5 with slow-tuner in the test cryostat	Ashutosh Pandey, S.Ghosh, R.Mehta, B.K. Sahu, G.K.Chaudhary, A.Rai, P.Patra, D.S.Mathuria, S.S.K.Sonti, K.K.Mistry, P.N.Prakash, T.S.Datta, D.Kanjilal	Accelerator	IUAC/TR/AP 2008-2009/13
14	Development of a piezoelectric based control scheme for superconducting resonators and performance of the scheme with QWR# 6 in the test cryostat	B.K. Sahu, S. Ghosh, R. Mehta, A. Pandey, Kundan Singh, G.K. Chaudhary, A. Rai, P. Patra, D.S. Mathuria, D. Kanjilal, A. Roy	Accelerator	IUAC/TR/BKS/2008-09/14
15	Octal Gate & Delay Generator NIM Module	V.V.V. Satyanarayana	Instrumentation	IUAC/TR/VVV/2008-09/15
16	FPGA based 8K ADC with 24-bit Histogram generator	V.V.V. Satyanarayana, Ruby Santhi & Ajith Kumar B.P.	Instrumentation	IUAC/TR/VVV/2008-09/16
17	Fabrication of C-Type Dipole Magnet	Sarvesh Kumar, S K Saini, A. Mandal	Beam Transport Lab	IUAC/TR/SK/2008-09/17

Srl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
18	Ion Optical Design of New Low Energy Ion Beam Facility	Sarvesh Kumar, P. Barua, A. Mandal	Beam Transport Lab	IUAC/TR/SK/2008-09/18
19	Electrostatic Quadrupoles and Steerer Magnets for new LEIBF	Sarvesh Kumar, A. Mandal	Beam Transport Lab	IUAC/TR/SK/2008-09/19
20	Beam Optics of Switching Magnet for LEIBF using GIOS and TRANSPORT codes	Sarvesh Kumar, A. Mandal	Beam Transport Lab	IUAC/TR/SK/2008-09/20
21	Beam Optics of Low Energy Beam Transport Section for High Current Injector Facility	Sarvesh Kumar, A. Mandal	Beam Transport Lab	IUAC/TR/SK/2008-09/21
22	Pulse Processing Electronics for Phoenix based MCA	V.V.V. Satyanarayna, Parmanand Singh & Ajith Kumar B.P.	Instrumentation	IUAC/TR/VVV/2008-09/22
23	An Alpha Test and Beam Test Facility Set Up at the Focal Plane of HYRA	Thomas Varughese, N. Madhavan, J. Gehlot, S. Nath	HYRA Laboratory	IUAC/TR/TV/2008-09/23
24	Development of Focal Plane Chamber for Hybrid Recoil Mass Analyzer	Thomas Varughese, N. Madhavan, J. Gehlot, S. Nath	HYRA Laboratory	IUAC/TR/TV/2008-09/24
25	Development of Fix Slits System for HYRA Spectrometer	Thomas Varughese, N. Madhavan, J. Gehlot, S. Nath	HYRA Laboratory	IUAC/TR/TV/2008-09/25
26	Development of Movable Slit System for HYRA	T. Varughese, S.Nath, N. Madhavan, J. Gehlot	HYRA Laboratory	IUAC/TR/TV/2008-09/26

B. LIST OF TECHNICAL MEMOS

Sl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
1	LT failure analysis of ACB at IUAC	U.G. Naik, Raj Kumar	Instrumentation	IUAC/TM/UGN/2008-2009/01
2	Installation of Auto Flushing Systems in Wash Rooms	A.J. Malyadri, Bishamber Kumar, MG#2	-----	IUAC/TM/AJM/2008-2009/02
3	Installation of Duplex Strainer in Chilled Water Supply line for Cryo Generators	A.J. Malyadri, Bishamber Kumar, MG#2	-----	IUAC/TM/AJM/2008-2009/03

Sl. No.	TITLE	AUTHORS	CATEGORY	REFERENCE No.
4	Development of Spark Protection Module	Y. Mathur, U.K. Rao, R.N. Dutt	Instrumentation	IUAC/TM/YM/2008-2009/04
5	Addressing System for Control Modules of PKDELIS	Y. Mathur, U.K. Rao, R.N. Dutt	Instrumentation	IUAC/TM/YM/2008-2009/05
6	Repairing of Motor Control Module of RF Tuner System	Yaduvansh Mathur	Instrumentation	IUAC/TM/YM/2008-2009/06
7	Troubleshooting of PKDELIS Control System Analog Control Module	Yaduvansh Mathur	Instrumentation	IUAC/TM/YM/2008-2009/07
8	Troubleshooting of Gas Valve Controller of LEIBF	Y. Mathur, U.K. Rao, G.O. Rodrigues, P. Kumar & P.S. Lakshmy	Instrumentation	IUAC/TM/YM/2008-2009/08
9	Repairing of Neutron Survey Monitors	Birendra Singh, S.P. Lochab, Rajan Joshi	Health Physics	IUAC/TM/BS/2008-2009/09

6.10 TEACHING LAB ACTIVITIES

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

The PHOENIX (Physics with Home-made Equipment and Innovative Experiments) program is making steady progress. Several new experiments were designed and made available commercially. During this year “one day workshops on Phoenix” were conducted at Govt. Model College, Jabalpur and R.P.Gogate College, Ratnagiri. A three day UGC sponsored training programme on Phoenix was organized by Christ college, Irihalakkuda. One “Six days training program” was conducted at IUAC during August 2008 and another one is scheduled for April 2009.

The new Phoenix accessories developed during this year includes an “Analog Companion” for Phoenix. It is useful for studying modulation techniques used in communication and also has some good quality amplifiers and regulated DC power outputs. The Geiger-Muller Counter accessory for gamma counting and the Pulse Processing Electronics for measuring the energy spectrum of alpha radiation also has been made commercially available.