6. ACADEMIC ACTIVITIES

6.1 BEAM UTILIZATION BY USERS

6.1.1 Low Energy Ion Beam Facility and Low Energy Negative Ion Implanter Facility Beam Time Utilization and Experiments performed (April, 2020 to March, 2021)

Users	No. of Shifts used (1 Shift =8Hrs.)	Project in	
		Materials Science	Atomic Physics
A. Universities/Colleges			
Aligarh Muslim University, Aligarh	3	1	
Doon University, Dehradun	3	1	
Inter-University Accelerator Centre, New Delhi	6	1	
Kalindi College, New Delhi	33		2
Guru Nanak Dev University, Amritsar	2	1	
Panjab University, Chandigarh	20		1
Manav Rachna University, Faridabad	1	1	
University of Delhi, New Delhi	15		2
B. Institutions			
All India Institute of Medical Sciences, New Delhi	1	1	
Indian Institute of Technology Madras, Chennai	3	1	
C. Facility Test	6		1
TOTAL	**93**	**7**	**6**

6.1.2 Pelletron Beam Time Utilization and Experiments performed (April, 2020 to March, 2021)

Users	No. of Shifts (1 Shift= 8 Hrs.) Used	No. of AMS Samples Used	Project in				
			Nuclear Physics	Materials Science	Radiation Biology	Atomic Physics	AMS
A. Universities/Colleges							
Bareilly College, Bareilly	15		1				
Central University of Kerala, Periye	15	7	1				1
Deenbandhu Chhotu Ram University of Science and Technology, Murthal	3			1			
Devi Ahilya Vishwavidyalaya, Indore	3			1			
Dr. Babasaheb Ambedkar Marathwada University, Aurangabad	3			1			
Goa University, Taleigao		30					1
Guru Gobind Singh Indraprastha University, Dwarka	6			2			
Inter University Accelerator Centre, New Delhi	50	39	1	7	2		3
Jamia Millia Islamia University, New Delhi	2			1			
Panjab University, Chandigarh	27		2			1	
Saurashtra University, Rajkot	3			1			
Thapar University, Patiala	15		1				
The Maharaja Sayajirao University of Baroda, Vadodara	18		1	1			
University of Allahabad, Prayagraj	3			1			
University of Calicut, Kerala	18		1				
University of Delhi, New Delhi	30		1				
University of Kashmir, Srinagar	3			1			
B. Institutions							
Agharkar Research Institute, Pune		12					1
Birbal Sahni Institute of Palaeobotany, Lucknow		5					1
CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow		17					1
Indian Institute of Science Education and Research Kolkata, West Bengal		20					1
Indian Institute of Technology (BHU), Varanasi	5		1	1			
Indian Institute of Technology Bombay, Mumbai	15		1				
Indian Institute of Technology Delhi, New Delhi	7			2			
Indian Institute of Technology Madras, Chennai	3			1			
Institute of Nuclear Medicine & Allied Sciences, New Delhi	1				1		
Institute of Seismological Research, Gandhinagar		8					1
National Institute of Oceanography, Dona Paula		20					1
National Institute of Technology Srinagar, Srinagar	3			1			

Users	No. of Shifts (1 Shift= 8 Hrs.) Used	No. of AMS Samples Used	Project in				
			Nuclear Physics	Materials Science	Radiation Biology	Atomic Physics	AMS
Sant Longowal Institute of Engineering & Technology, Sangrur	6			1			
Semi-Conductor Laboratory, Mohali	3			1			
Space Applications Centre (ISRO), Ahmedabad	3			1			
UR Rao Satellite Centre (ISRO), Bengaluru	3			1			
C. Facility Test	**21**		**2**				
TOTAL	**284**	**158**	**13**	**26**	**3**	**1**	**11**

6.1.3 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 – (154)

1.	Acharya Nagarjuna University	Guntur (Andhra Pradesh)
2.	Alagappa University	Karaikudi (Tamil Nadu)
3.	Aligarh Muslim University	Aligarh (Uttar Pradesh)
4.	Amity University	Noida (Uttar Pradesh)
5.	Andhra University	Visakhapatnam (Andhra Pradesh)
6.	Anna University	Chennai (Tamil Nadu)
7.	Annamalai University	Tamil Nadu
8.	Assam University	Silchar (Assam)
9.	Baba Ghulam Shah Badshah University	Rajouri (Jammu and Kashmir)
10.	Babasaheb Bhimrao Ambedkar University	Lucknow (Uttar Pradesh)
11.	Banaras Hindu University, Varanasi (formerly Central Hindu College)	Varanasi (Uttar Pradesh)
12.	Bangalore University	Bangalore (Karnataka)
13.	Berhampur University	Berhampur (Odisha)
14.	Bharathiar University	Coimbatore (Tamil Nadu)
15.	Bharathidasan University	Tiruchirappalli (Tamil Nadu)
16.	Central University of Gujarat	Gandhinagar (Gujarat)
17.	Central University of Haryana	Mahendragarh (Haryana)
18.	Central University of Jammu	Jammu (Jammu and Kashmir)
19.	Central University of Jharkhand	Ranchi (Jharkhand)
20.	Central University of Kerala	Kasaragod (Kerala)
21.	Central University of Punjab	Bathinda (Punjab)
22.	Central University of Rajasthan	Ajmer (Rajasthan)

23.	Central University of South Bihar	Gaya (Bihar)
24.	Central University of Tamil Nadu	Tamil Nadu
25.	Charotar University of Science and Technology	Gujarat
26.	Chaudhary Charan Singh University, Meerut (formerly Meerut University)	Meerut (Uttar Pradesh)
27.	Chaudhary Devi Lal University	Sirsa (Haryana)
28.	Chitkara University	Solan (Himachal Pradesh)
29.	Cochin University of Science & Technology	Kochi (Kerala)
30.	Cotton University	Guwahati (Assam)
31.	DAV University	Jalandhar (Jalandhar)
32.	Darmstadt University of Technology	Darmstadt (Germany)
33.	Deen Dayal Upadhyaya Gorakhpur University	Gorakhpur (Uttar Pradesh)
34.	Deenbandhu Chhotu Ram University of Science and Technology (formerly Chhotu Ram State College of Engineering)	Murthal (Haryana)
35.	Delhi Technological University (formerly Delhi College of Engineering)	Delhi
36.	Devi Ahilya Vishwavidyalaya	Indore (Madhya Pradesh)
37.	Dibrugarh University	Dibrugarh (Assam)
38.	Dr. Babasaheb Ambedkar Marathwada University	Aurangabad (Maharashtra)
39.	Dr. Bhimrao Ambedkar University (formerly Agra University)	Agra (Uttar Pradesh)
40.	Doon University	Dehradun (Uttarakhand)
41.	Gauhati University	Guwahati (Assam)
42.	Gautam Buddha University	Greater Noida (Uttar Pradesh)
43.	Goa University	Plateau (Goa)
44.	Govind Ballabh Pant University of Agriculture and Technology	Pantnagar (Uttarakhand)
45.	Gujarat Technological University Ahmedabad (Gujarat)	
46.	Gujarat University	Ahmedabad (Gujarat)
47.	Gulbarga University	Gulbarga (Karnataka)
48.	Guru Ghasidas Vishwavidyalaya	Bilaspur (Chhattisgarh)
49.	Guru Gobind Singh Indraprastha University (formerly Indraprastha University)	Dwarka (Delhi)
50.	Guru Jambheshwar University of Science & Technology	Hisar (Haryana)
51.	Guru Nanak Dev University	Amritsar (Punjab)
52.	Gurukul Kangri Vishwavidyalaya	Haridwar (Uttarakhand)
53.	Hemwati Nandan Bahuguna Garhwal University	Srinagar (Uttarakhand)
54.	Himachal Pradesh University	Shimla (Himachal Pradesh)
55.	Indira Gandhi National Open University	New Delhi (Delhi)
56.	Indira Gandhi University Meerpur	Meerpur (Haryana)
57.	I.K. Gujral Punjab Technical University (formerly Punjab Technical University)	Kapurthala (Punjab)
58.	Jai Prakash Vishwavidyalaya	Chhapra (Bihar)
59.	Jamia Millia Islamia University	New Delhi (Delhi)

60.	Jawaharlal Nehru University	Delhi (Delhi)
61.	Karnataka University	Dharwad (Karnataka)
62.	Kiel University	Kiel (Germany)
63.	Kolhan University	Chaibasa (Jharkhand)
64.	Kumaun University	Nainital (Uttarakhand)
65.	Kurukshetra University	Kurukshetra (Haryana)
66.	Kuvempu University, Shankaraghatta	Shimoga (Karnataka)
67.	Kyoto University	Kyoto (Japan)
68.	K.R. Mangalam University	Gurgaon (Haryana)
69.	Ludwig-Maximilians-Universität München	Munich (Germany)
70.	Madurai Kamaraj University	Madurai (Tamil Nadu)
71.	Maharaja Krishnakumarsinhji Bhavnagar University (formerly Bhavnagar University)	Bhavnagar (Gujarat)
72.	Maharshi Dayanand University	Rohtak (Haryana)
73.	Maharishi Markandeshwar University	Mullana (Haryana)
74.	Mahatma Gandhi Central University	Motihari (Bihar)
75.	Mahatma Gandhi University	Kottayam (Kerala)
76.	Mahatma Jyotiba Phule Rohilkhand University	Bareilly (Uttar Pradesh)
77.	Manav Rachna International Institute of Research and Studies (formerly Manav Rachna International University)	Faridabad (Haryana)
78.	Mangalore University	Mangaluru (Karnataka)
79.	Manipal University Jaipur	Jaipur (Rajasthan)
80.	Manipur University	Imphal (Manipur)
81.	Manonmaniam Sundaranar University	Tirunelveli (Tamil Nadu)
82.	Marwadi University	Rajkot (Gujarat)
83.	Mohanlal Sukhadia University (also called University of Udaipur)	Udaipur (Rajasthan)
84.	Mother Teresa Women's University	Kodaikanal (Tamil Nadu)
85.	Nirma University	Ahmedabad (Gujarat)
86.	North Carolina State University	Raleigh (USA)
87.	North-Eastern Hill University	Shillong (Meghalaya)
88.	North Maharashtra University (renamed as Kavayitri Bahinabai Chaudhari North Maharashtra University)	Jalgaon (Maharashtra)
89.	North Orissa University	Baripada (Odisha)
90.	Odisha University of Agriculture and Technology	Bhubaneswar (Odisha)
91.	Osaka University	Osaka (Japan)
92.	Osmania University	Hyderabad (Telangana)
93.	Panjab University	Chandigarh (Punjab)
94.	Patna University	Patna (Bihar)
95.	Periyar University	Salem (Tamil Nadu)
96.	Pondicherry University	Pondicherry (Pondicherry)
97.	Punjab Agricultural University	Ludhiana (Punjab)
98.	Punjabi University	Patiala (Punjab)
99.	Rajiv Gandhi University	Arunachal Pradesh

100.	Rani Durgavati Vishwavidyalaya (also known as University of Jabalpur)	Jabalpur (Madhya Pradesh)
101.	REVA University	Bengaluru (Karnataka)
102.	Rashtrasant Tukadoji Maharaj Nagpur University (formerly Nagpur University)	Nagpur (Maharashtra)
103.	Ravenshaw University	Cuttack (Odisha)
104.	Sabanci University	Tuzla/İstanbul (Turkey)
105.	Saint Petersburg Polytechnic University	Russia (Russia)
106.	Sardar Patel University	Gujarat
107.	Saurashtra University	Rajkot (Gujarat)
108.	Savitribai Phule Pune University (formerly University of Pune)	Pune (Maharashtra)
109.	Sharda University	Greater Noida (Uttar Pradesh)
110.	Sheffield Hallam University	Sheffield (UK)
111.	Shiv Nadar University	Greater Noida (Uttar Pradesh)
112.	Shivaji University	Kolhapur (Maharashtra)
113.	Shri Mata Vaishno Devi University	Katra (Jammu and Kashmir)
114.	Sikkim University	Gangtok (Sikkim)
115.	Sri Krishnadevaraya University	Anantapur (Andhra Pradesh)
116.	Tamil University	Thanjavur (Tamil Nadu)
117.	Tezpur University	Tezpur (Assam)
118.	The Maharaja Sayajirao University of Baroda	Vadodara (Gujarat)
119.	The NorthCap University, (formerly ITM University)	Gurgaon (Haryana)
120.	The University of Burdwan	Bardhaman (West Bengal)
121.	The University of Sheffield	Sheffield (UK)
122.	Tilka Manjhi Bhagalpur University (formerly Bhagalpur University)	Bhagalpur (Bihar)
123.	Tripura University	Suryamaninagar (Tripura)
124.	Tumkur University	Tumkur (Karnataka)
125.	University and Petroleum & Energy Studies	Dehradun (Uttarakhand)
126.	University College London	London (United Kingdom)
127.	University of Allahabad	Prayagraj (Uttar Pradesh)
128.	University of Calcutta	Kolkata (West Bengal)
129.	University of Calicut	Kerala (Kerala)
130.	University of Delhi	New Delhi (Delhi)
131.	University of Hyderabad	Hyderabad (Telangana)
132.	University of Johannesburg	South Africa
133.	University of Kalyani	Kalyani (West Bengal)
134.	University of Kashmir	Srinagar (Jammu and Kashmir)
135.	University of Kerala (formerly the University of Travancore)	Thiruvananthapuram, Kerala
136.	University of Lucknow	Lucknow (Uttar Pradesh)
137.	University of Madras	Chennai (Tamil Nadu)
138.	University of Maryland	Maryland (USA)
139.	University of Mumbai (known earlier as University of Bombay)	Mumbai (Maharashtra)
140.	University of Mysore	Mysuru (Karnataka)

141.	University of Notre Dame	Notre Dame (USA)
142.	University of Padova	Padova (Italy)
143.	University of Paris-Saclay	Orsay (France)
144.	University of Rajasthan	Jaipur (Rajasthan)
145.	University of Stuttgart	Stuttgart (Germany)
146.	University of Surrey	Guildford (UK)
147.	Heavy Ion Laboratory, University of Warsaw	Poland (Poland)
148.	Utkal University (also known as Vani Vihar)	Bhubaneswar (Odisha)
149.	Vijayanagara Sri Krishnadevaraya University	Bellary
150.	Vikram University	Ujjain (Madhya Pradesh)
151.	Visva-Bharati University	Bolpur (West Bengal)
152.	Visvesvaraya Technological University	Belgaum (Karnataka)
153.	Vivekananda Global University	Jaipur (Rajasthan)
154.	Maulana Abul Kalam Azad University of Technology (formerly West Bengal University of Technology)	Kolkata (West Bengal)

(B) COLLEGES – (84)

1.	Aligarh College of Engineering and Technology	Aligarh (Uttar Pradesh)
2.	Anand International College of Engineering	Jaipur (Rajasthan)
3.	Ananda Mohan College	Kolkata (West Bengal)
4.	Armed Forces Medical College	Pune (Maharashtra)
5.	Bareilly College	Bareilly (Uttar Pradesh)
6.	Beant College of Engineering & Technology	Gurdaspur (Punjab)
7.	Bharatiya Jain Sanghatana's Arts, Science and Commerce College	Pune (Maharashtra)
8.	Bhiwandi College	Mumbai (Maharashtra)
9.	Birla College of Arts, Science and Commerce	Kalyan (Maharashtra)
10.	B.N.N. College	Bhiwandi (Maharashtra)
11.	Dakshin Kamrup College	Guwahati (Assam)
12.	Deen Dayal Upadhyaya College	New Delhi (Delhi)
13.	Dev Samaj College for Women	Chandigarh
14.	Doodhsakhar Mahavidyalaya	Kolhapur (Maharashtra)
15.	Dum Dum Motijheel College	South Dum Dum (West Bengal)
16.	D.A.V. College	Amritsar (Punjab)
17.	D.A.V. College	Jalandhar (Punjab)
18.	D.A.V. College	Kanpur (Uttar Pradesh)
19.	D.A.V. College	Mumbai (Maharashtra)
20.	D.B.S. (P.G.) College	Dehradun (Uttarakhand)
21.	Ewing Christian College	Prayagraj (Uttar Pradesh)
22.	Gandhi Faiz-E-Aam College	Shahjahanpur (Uttar Pradesh)
23.	Goalpara College	Assam (Assam)
24.	Government Arts College	Rajahmundry (Andhra Pradesh)
25.	Government College	Ajmer (Rajasthan)

26.	Government College	Kota (Rajasthan)
27.	Government College	Mahendragarh (Haryana)
28.	Government Women`s College Kolar	Kolar (Karnataka)
29.	Guru Nanak Girls College	Ludhiana (Punjab)
30.	Gurudas College	Kolkata (West Bengal)
31.	Indraprastha College for Women also known as Indraprastha College	Civil Line (Delhi)
32.	Iswar Chandra Vidyasagar College (formerly Belonia College)	Belonia (Tripura)
33.	Jai Hind College	Mumbai (Maharashtra)
34.	Kalindi College	New Delhi (Delhi)
35.	Kandi Raj College	Kandi (West Bengal)
36.	Kanya Mahavidyalaya	Jalandhar (Punjab)
37.	Kishinchand Chellaram College	Mumbai (Maharashtra)
38.	Kongunadu Arts & Science College	Coimbatore (Tamil Nadu)
39.	Koshi College	Khagaria (Bihar)
40.	Krishnath College	Baharampur (West Bengal)
41.	K.J. Somaiya College of Science & Commerce	Mumbai (Maharashtra)
42.	KLE's, B.K. Degree College	Chikodi (Karnataka)
43.	Lalbaba College	Howrah (West Bengal)
44.	Maharajah's Post Graduate College	Vizianagaram (Andhra Pradesh)
45.	Maharani Shri Jaya College	Bharatpur (Rajasthan)
46.	Mahila Vidyalaya PG College	Lucknow (Uttar Pradesh)
47.	Marwari College	Ranchi (Jharkhand)
48.	M.M.H. College	Ghaziabad (Uttar Pradesh)
49.	Nayagarh College	Nayagarh (Odisha)
50.	Nizam College	Hyderabad (Telangana)
51.	N.S.A.M. College	Mangaluru (Karnataka)
52.	Poornaprajna College and Post Graduate Centre, Udupi	Udupi (Karnataka)
53.	P.C. Jabin Science College	Hubli (Karnataka)
54.	Punjab Engineering College	Chandigarh (Chandgarh)
55.	PSGR Krishnammal College for Women	Coimbatore (Tamil Nadu)
56.	Raja Balwant Singh College (formerly known as Balwant Rajput College)	Agra (Uttar Pradesh)
57.	R.D. & D.J. College	Munger (Bihar)
58.	R.P.G. College	Ratnagiri (Maharashtra)
59.	Sanatan Dharma College	Ambala Cantt (Haryana)
60.	School of Physical Sciences	Nanded (Maharashtra)
61.	School of Physical Sciences	New Delhi (Delhi)
62.	School of Technology & Applied Sciences	Kochi (Kerala)
63.	Shaheed Rajguru College of Applied Sciences for Women	New Delhi
64.	Sharnbasveshwar College of Science	Gulbarga (Karnataka)
65.	Shri Varshney College	Aligarh (Uttar Pradesh)
66.	Smt. Chandibai Himathmal Mansukhani College	Thane (Maharashtra)

67.	Sree Narayana College	Kollam (Kerala)
68.	Sri Bhuvanendra College	Karkala (Karnataka)
69.	Sri Ramakrishna Engineering College	Coimbatore
70.	Sri S. Ramasamy Naidu Memorial College	Sattur (Tamil Nadu)
71.	Sri Venkateswara College	New Delhi (Delhi)
72.	St. Edmund's College	Shillong (Meghalaya)
73.	St. Xavier's College	Kolkata (West Bengal)
74.	St. Xavier's College	Mumbai (Maharashtra)
75.	Swami Shraddhanand College	New Delhi (Delhi)
76.	S.D.M. College	Mysuru (Karnataka)
77.	S.D.M. College	Uijre (Karnataka)
78.	S.S. Jain Subodh P.G. (Autonomous) College	Jaipur (Rajasthan)
79.	University College of Engineering (a constituent College of Anna University)	Arni (Tamil Nadu)
80.	University College of Science & Technology	Kolkata (West Bengal)
81.	Vaish College of Education	Rohtak (Haryana)
82.	Vardhaman College	Bijnor (Uttar Pradesh)
83.	Zakir Husain Delhi College	Delhi (New Delhi)
84.	Zamorin's Guruvayurappan College	Kerala

(C) OTHER INSTITUTIONS – (138)

1.	Agharkar Research Institute	Pune (Maharashtra)
2.	All India Council For Technical Education	New Delhi (Delhi)
3.	All India Institute of Medical Sciences	New Delhi (Delhi)
4.	Amity Institute of Nanotechnology	Noida (Uttar Pradesh)
5.	Amity School of Engineering & Technology	New Delhi (Delhi)
6.	Amrita School of Engineering (Amrita School of Engineering is an engineering institution, part of Amrita Vishwa Vidyapeetham)	Bangaluru (Karnataka)
7.	Amrita Vishwa Vidyapeetham,	Bangaluru (Karnataka)
8.	Archaeological Survey of India	Agra (Uttar Pradesh)
9.	Archaeological Survey of India	Bengaluru (Karnataka)
10.	Archaeological Survey of India	Bhubaneswar (Odisha)
11.	Archaeological Survey of India	Janpath (Delhi)
12.	Archaeological Survey of India	Aizawl (Mizoram)
13.	Archaeological Survey of India	Patna (Bihar)
14.	Archaeological Survey of India	Red Fort Complex (Delhi)
15.	Archaeological Survey of India	Tirupati (Andhra Pradesh)
16.	Archaeological Survey of India	Vadodara (Gujarat)
17.	Archaeological Survey of India	Vijayawada (Andhra Pradesh)
18.	Atal Bihari Vajpayee Indian Institute of Information Technology and Management	Gwalior (Madhya Pradesh)
19.	AFM/XPS Laboratory	Bhubaneswar (Odisha)
20.	Banasthali Vidyapith	Rajasthan

21.	Bangabasi Morning College	Kolkata (West Bengal)
22.	Bannari Amman Institute of Technology	Tamil Nadu
23.	Bhabha Atomic Research Centre	Mumbai (Maharashtra)
24.	Birbal Sahni Institute of Palaeobotany	Lucknow (Uttar Pradesh)
25.	Birla Institute of Technology	Mesra (Jharkhand)
26.	Bose Institute	Kolkata (West Bengal)
27.	Calcutta Institute of Engineering and Management	Kolkata (West Bengal)
28.	Central Electronics Engineering Research Institute	Pilani (Rajasthan)
29.	Centre for Cellular and Molecular Biology	Hyderabad (Telangana)
30.	Centre de Sciences Nucléaires et de Sciences de la Matière	France
31.	Centre for Superconductivity Research	USA
32.	CSIR-Central Institute of Medicinal and Aromatic Plants	Lucknow (Uttar Pradesh)
33.	CSIR-Institute of Minerals and Materials Technology (Formerly Regional Research Laboratory)	Bhubaneswar (Odisha)
34.	Dayalbagh Educational Institute	Agra (Uttar Pradesh)
35.	Deccan College Post-Graduate and Research Institute	Pune (Maharashtra)
36.	Defence Institute of Advanced Technology	Pune (Maharashtra)
37.	Defence Laboratory	Jodhpur (Rajasthan)
38.	Defence Metallurgical Research Laboratory	Hyderabad (Telangana)
39.	Defence Research & Development Organization	Dehradun (Uttarakhand)
40.	Dr. B.R. Ambedkar National Institute of Technology (formerly Regional Engineering College Jalandhar)	Jalandhar (Punjab)
41.	Facility for Antiproton and Ion Research in Europe GmbH	Darmstadt (Germany)
42.	Flerov Laboratory of Nuclear Reactions JINR	Russia
43.	Genetic Institute of Manufacturing Technology	Singapore (Singapore)
44.	Geological Survey of India	Mangalore (Karnataka)
45.	GSI Helmholtzzentrum für Schwerionenforschung GmbH	Darmstadt (Germany)
46.	Harcourt Butler Technological Institute	Kanpur (Uttar Pradesh)
47.	Homi Bhabha National Institute	Kolkata (West Bengal)
48.	Indian Association for the Cultivation of Science	Kolkata (West Bengal)
49.	Indian Institute of Engineering Science and Technology (Formerly Bengal Engineering and Science University, Shibpur)	Howrah (West Bengal)
50.	Indian Institute of Information Technology	Allahabad (Uttar Pradesh)
51.	Indian Institute of Information Technology Design & Manufacturing Jabalpur	Jabalpur (Madhya Pradesh)
52.	Indian Institute of Science	Bengaluru (Karnataka)
53.	Indian Institute of Science Education and Research Kolkata	Mohanpur (West Bengal)
54.	Indian Institute of Science Education and Research Mohali	Mohali (Punjab)
55.	Indian Institute of Science Education and Research Thiruvananthapuram	Thiruvananthapuram
56.	Indian Institute of Space Science and Technology	Valiamala (Kerala)
57.	Indian Institute of Technology (BHU)	Varanasi (Uttar Pradesh)
58.	Indian Institute of Technology Bhubaneswar	Khordha (Odisha)
59.	Indian Institute of Technology Bombay	Mumbai (Maharashtra)

60.	Indian Institute of Technology Delhi	New Delhi (Delhi)
61.	Indian Institute of Technology Gandhinagar	Gandhinagar (Gujarat)
62.	Indian Institute of Technology Guwahati	Guwahati (Assam)
63.	Indian Institute of Technology Hyderabad	Sangareddy (Telangana)
64.	Indian Institute of Technology (ISM) (formerly known as Indian School of Mines)	Dhanbad (Jharkhand)
65.	Indian Institute of Technology Jodhpur	Jodhpur (Rajasthan)
66.	Indian Institute of Technology Kanpur	Kanpur (Uttar Pradesh)
67.	Indian Institute of Technology Kharagpur	Kharagpur (West Bengal)
68.	Indian Institute of Technology Madras	Chennai (Tamil Nadu)
69.	Indian Institute of Technology Roorkee	Roorkee (Uttarakhand)
70.	Indian Institute of Technology Ropar	Rupnagar (Punjab)
71.	Indian Institute of Tropical Meteorology	Pune (Maharashtra)
72.	Indira Gandhi Centre for Atomic Research	Kalpakkam (Tamil Nadu)
73.	Institute for Plasma Research	Gandhinagar (Gujarat)
74.	Institute of Basic Science	Agra (Uttar Pradesh)
75.	Institute of Energy and Climate Research, Forschungszentrum Jülich	Jülich (Germany)
76.	Institute of Materials Science	Bhubaneswar (Odisha)
77.	Institute of Nuclear Medicine & Allied Sciences-DRDO	New Delhi (Delhi)
78.	Institute of Physics	Bhubaneswar (Odisha)
79.	Institute of Seismological Research	Gandhinagar (Gujarat)
80.	International Centre for Genetic Engineering and Biotechnology,	New Delhi (Delhi)
81.	INFN Legnaro National Laboratory (LNL)	Legnaro (Italy)
82.	IUC-DAEF, Calcutta Centre	Kolkata (West Bengal)
83.	IUC-DAEF, Indore Centre	Indore (Madhya Pradesh)
84.	J.C. Bose University of Science and Technology, YMCA, (formerly YMCA University of Science and Technology and YMCA Institute of Engineering)	Faridabad (Haryana)
85.	Jawaharlal Nehru Centre For Advanced Scientific Research	Bengaluru (Karnataka)
86.	Jaypee Institute of Information Technology	Noida (Uttar Pradesh)
87.	Joint Institute for Nuclear Research	Dubna (Russia)
88.	Kalinga Institute of Industrial Technology	Bhubaneswar (Odisha)
89.	Malaviya National Institute of Technology Jaipur	Jaipur (Rajasthan)
90.	Manipal Institute of Technology	Manipal (Karnataka)
91.	Massachusetts Institute of Technology	Cambridge (USA)
92.	Maulana Azad National Institute of Technology (also known as National Institute of Technology)	Bhopal (Madhya Pradesh)
93.	Ministry of Defence (R & D Orgn)	Delhi
94.	Motilal Nehru National Institute of Technology (formerly Motilal Nehru Regional Engineering College)	Allahabad (Uttar Pradesh)
95.	Nanocrystals Technology	USA
96.	National Institute of Advanced Studies	Bengaluru (Karnataka)
97.	National Institute of Material Sciences	Japan

98.	National Institute of Oceanography	Dona Paula (Goa)
99.	National Institute of Science Education and Research	Pune (Maharashtra)
100.	National Institute of Science Education and Research Bhubaneswar	Khurda (Odisha)
101.	National Institute of Technology	Tadepalligudem (Andhra Pradesh)
102.	National Institute of Technology	Silchar (Assam)
103.	National Institute of Technology	Tiruchirappalli (Tamil Nadu)
104.	National Institute of Technology Hamirpur	Hamirpur (Himachal Pradesh)
105.	National Institute of Technology Kurukshetra	Kurukshetra (Haryana)
106.	National Institute of Technology Rourkela	Rourkela (Odisha)
107.	National Institute of Technology Srinagar	Srinagar (Jammu and Kashmir)
108.	National Museum	New Delhi (Delhi)
109.	National Physical Laboratory	New Delhi (Delhi)
110.	NCCCM/BARC	Hyderabad (Telangana)
111.	NCSR	France
112.	Oak Ridge National Laboratory	USA
113.	Physical Research Laboratory	Ahmedabad (Gujarat)
114.	P.E.S. Institute of Technology	Bengaluru (Karnataka)
115.	Raja Ramanna Centre for Advanced Technology	Indore (Madhya Pradesh)
116.	Research & Innovation Centre	Chennai (Tamil Nadu)
117.	Research Centre Imarat, DRDO	Hyderabad (Telangana)
118.	Saha Institute of Nuclear Physics	Kolkata (West Bengal)
119.	Sant Longowal Institute of Engineering & Technology	Sangrur (Punjab)
120.	Semi-Conductor Laboratory	Mohali (Punjab)
121.	Shree Devi Institute of Technology	Mangaluru (Karnataka)
122.	Space Applications Centre (ISRO)	Ahmedabad
123.	Solid State Physics Laboratory, DRDO	New Delhi (Delhi)
124.	S.N. Bose National Centre for Basic Sciences	Kolkata (West Bengal)
125.	SUNAG Laboratory, Institute of Physics	Bhubaneswar (Odisha)
126.	Tata Institute of Fundamental Research	Mumbai (Maharashtra)
127.	Thapar Institute of Engineering & Technology (previously known as Thapar University)	Patiala (Punjab)
128.	The Institute of Science	MumbaI (Maharashtra)
129.	The National Academy of Sciences	Prayagraj (Uttar Pradesh)
130.	The National Centre for Polar and Ocean Research (formerly known as the National Centre for Antarctic and Ocean Research)	Goa
131.	UGC-DAE-Consortium For Scientific Research	Indore (Madhya Pradesh)
132.	UGC-DAE-Consortium For Scientific Research	Kolkata (West Bengal)
133.	UM-DAC Centre for Excellence in Basic Sciences	Mumbai (Maharashtra)
134.	UR Rao Satellite Centre (formerly known as ISRO Satellite Centre)	Bengaluru (Karnataka)
135.	Variable Energy Cyclotron Centre	Kolkata (West Bengal)
136.	Vidya Prasarak Mandal's Polytechnic	Thane (Maharashtra)
137.	Visva-Bharati	Santiniketan (West Bengal)
138.	Wadia Institute of Himalayan Geology	Dehradun (Uttarakhand)

6.2 छात्र कार्यक्रम

6.2.1 विज्ञान स्नातक (भौतिक विज्ञान) छात्र ग्रीष्मकालीन कार्यक्रम

एस. ए. खान

अंतर–विश्वविद्यालय त्वरक केंद्र में चल रहे त्वरक आधारित शोध एवं विकास से परिचित करवाने और उसके द्वारा विज्ञान को अपना करियर बनाने के लिए प्रोत्साहित करने के लिए यहाँ पर प्रतिवर्ष विज्ञान स्नातक (भौतिक विज्ञान) छात्र ग्रीष्मकालीन कार्यक्रम आयोजित किया जाता है। इस वर्ष यह कार्यक्रम 1–26 जून, 2020 तक गूगल मीट प्लेटफॉर्म का उपयोग करते हुए ऑनलाइन माध्यम से आयोजित किया गया था जिसके लिए संपूर्ण भारत के महाविद्यालयों/विश्वविद्यालयों से आवेदन करने वाले 120 छात्रों में से विज्ञान स्नातक (भौतिक विज्ञान) के सत्रह छात्रों को चुना गया था। प्रत्येक प्रतिभागी ने सफलतापूर्वक एक परियोजना पूर्ण की जिसका पर्यवेक्षण अंतर–विश्वविद्यालय त्वरक केंद्र के संबंधित वैज्ञानिकों और अभियंताओं द्वारा किया गया। कार्यक्रम के अंतिम दिन छात्रों ने अपने कार्य को ऑनलाइन माध्यम से प्रस्तुत किया।

6.2.2 विज्ञान स्नातकोत्तर अभिमुखता कार्यक्रम

आर. मेहता

अंतर–विश्वविद्यालय त्वरक केंद्र इच्छुक छात्रों को अपने ज्ञान के पूरक के लिए प्रोत्साहित करने और उन्हें विज्ञान में अपना करियर जारी रखने के लिए प्रेरित करने के लिए विज्ञान स्नातकोत्तर अभिमुखता कार्यक्रम आयोजित करता है। इस कार्यक्रम की परिकल्पना चयनित विज्ञान स्नातकोत्तर छात्रों को त्वरक/आयन पुंज आधारित शोध से संबद्ध क्षेत्रों में लघु परियोजनाओं के माध्यम से व्यावहारिक प्रशिक्षण प्रदान करना है। विज्ञान स्नातकोत्तर अभिमुखता कार्यक्रम की अवधि तीन सप्ताह होती है। यह वर्षपर्यंत खुला रहता है। छात्र अपने सुविधाजनक समय के आधार पर कार्यक्रम के लिए आवेदन कर सकते हैं। इस लचीलेपन के कारण छात्र अपने मुख्य अध्ययन कार्यक्रम में कोई व्यवधान डाले बिना ही परियोजना की अवधि चुन सकते हैं। आवेदन केवल ऑनलाइन प्रस्तुत किए जा सकते हैं।

6.2.3 विद्या वाचस्पति शिक्षण कार्यक्रम

एस. मुरलीथर एवं ए. त्रिपाठी

अंतर–विश्वविद्यालय त्वरक केंद्र ऊर्जावान आयन पुंज का उपयोग करके शोध कार्य करने वाले विद्या वाचस्पति छात्रों के लिए विश्वविद्यालय अनुदान आयोग के दिशानिर्देशों के अनुरूप सोलह क्रेडिट पाठ्यक्रम कार्यक्रम संचालित करता है। अंतर–विश्वविद्यालय त्वरक केंद्र ने अंतर–विश्वविद्यालय त्वरक केंद्र के शोध छात्रों, अन्य विश्वविद्यालयों के शोध छात्रों और नए प्रशिक्षु वैज्ञानिकों के लिए वर्ष 2019–20 के द्वितीय सेमेस्टर के पाठ्यक्रम मॉड्यूल का संचालन किया जबकि महामारी की स्थिति के कारण वर्ष 2020–21 का शैक्षणिक सत्र आयोजित नहीं किया जा सका।

साप्ताहिक प्रस्तुति

प्रत्येक बुधवार को सायं 4.00 बजे आधे घंटे की अवधि के लिए छात्रों (कनिष्ठ शोध छात्रों/वरिष्ठ शोध छात्रों/शोध सहयोगियों/परवर्ती वाचस्पति अध्येताओं) की इच्छा के विषयों पर ऑनलाइन माध्यम से एक साप्ताहिक चर्चा आयोजित की जाती थी। प्रस्तुतियाँ वैकल्पिक सप्ताह में कनिष्ठ शोध छात्रों या वरिष्ठ शोध छात्रों में से किसी एक के द्वारा और अंतर–विश्वविद्यालय त्वरक केंद्र के विभिन्न समूहों के शोध सहयोगियों या परवर्ती वाचस्पति अध्येताओं में से किसी एक द्वारा दी गईं थीं। इससे प्रत्येक को शैक्षणिक रूप से समृद्ध करते हुए किए जा रहे कार्यों को प्रस्तुत करने का अवसर प्राप्त हुआ।

6.2.4 शिक्षण प्रयोगशाला के कार्यकलाप

वी. वी. वी. सत्यनारायणा एवं अजित कुमार बी. पी.

शिक्षण प्रयोगशाला की स्थापना वर्ष 2005 में अंतर–विश्वविद्यालय त्वरक केंद्र के आउटरीच कार्यक्रम के एक भाग के रूप में की गई थी जो मुख्यतः कंप्यूटर इंटरफेस वाले प्रयोगशाला उपकरणों और प्रशिक्षण महाविद्यालय/विश्वविद्यालय के शिक्षकों का विकास करती है। इस योजना के अंतर्गत विकसित किए गए हार्डवेयर और सॉफ्टवेयर खुले स्रोत हैं। युवा अभियंताओं और वैज्ञानिकों के लिए प्रयोग–17 हार्डवेयर का उपयोग कंप्यूटर इंटरफेस वाले विज्ञान के प्रयोगों पर प्रशिक्षण प्रदान करने के लिए किया जाता है। युवा अभियंताओं और वैज्ञानिकों के लिए प्रयोग को एक उपकरण के रूप में माना जा सकता है जो एक साधारण कंप्यूटर को प्रयोगशाला उपकरणों के समूह यथा ऑसिलोस्कोप, फंक्शन जैनेरेटर, आवृत्ति गणक, डी सी विद्युत आपूर्ति, थर्मामीटर, दाबमापी आदि के संग्रह में परिवर्तित कर सकता है। ये कार्य एक रेखाचित्रीय प्रयोक्ता इंटरफेस के माध्यम से नियंत्रित युवा अभियंताओं और वैज्ञानिकों के लिए प्रयोग के शीर्ष भाग पर सादृश्य और डिजिटल इनपुट/आउटपुट टर्मिनलों के एक सेट के माध्यम से उपलब्ध करवाए गए हैं।

28 सितंबर–5 अक्तूबर, 2020 के दौरान एक प्रशिक्षण कार्यक्रम ऑनलाइन माध्यम से आयोजित किया गया था। इस प्रशिक्षण कार्यक्रम के लिए मूडल नामक ओपन–सोर्स लर्निंग प्लेटफॉर्म का उपयोग किया जाता है। युवा अभियंताओं और वैज्ञानिकों के लिए प्रयोग के लिए बहुभाषा लिपि को फ्रेंच, स्पैनिश, मलयालम और तेलुगू में ग्राफिकल यूजर इंटरफेस और हेल्प मेनू दोनों के लिए फ्रेंच, स्पैनिश, मलयालम और तेलुगू में विकसित किया गया था। तमिल, गुजराती और मराठी लिपियों के लिए केवल ग्राफिकल यूजर इंटरफेस को पूर्ण किया गया था।

युवा अभियंताओं और वैज्ञानिकों के लिए प्रयोग के लिए तेलुगू भाषा लिपि

6.2 STUDENT PROGRAMME

6.2.1 B.Sc. (Physics) Students Summer Programme

S. A. Khan

The B.Sc. (Physics) Students Summer Programme is being held annually in IUAC to familiarize the participants to accelerators-based research and development going on here, and thereby encouraging them to pursue career in science. This year it was organized from 1-26 June 2020 in online mode using Google Meet platform for which seventeen B. Sc. (Physics) students from colleges/universities across India were selected from nearly 120 applicants. Each participant successfully completed a project which was supervised by respective scientists and engineers of IUAC. The students presented their work on the last day of the programme in online mode.

6.2.2 M. Sc. Orientation Programme

R Mehta

Inter-University Accelerator Centre (IUAC) conducts M. Sc. Orientation Programme to encourage interested students to supplement their knowledge and to motivate them to continue their career in science. This programme has been envisaged to provide hands-on training in fields associated with accelerator / ion beam based research to selected M. Sc. students by way of short projects. The duration of M. Sc. Orientation programme is three weeks. It is open throughout the year. Student can apply for this programme based on their convenient time. This flexibility allows the students to choose the project period without hampering their main study course. Applications can be submitted online only.

6.2.3 PhD Teaching Programme

S. Muralithar and A. Tripathi

IUAC conducts a sixteen credit course work, conforming to UGC guidelines for PhD students pursuing research using energetic ion beams. IUAC conducted course modules of second semester of 2019 – 2020 for research students of IUAC, research students from other universities and new trainee scientists, while the academic year session for 2020 - 2021 could not be conducted due to pandemic situation.

Weekly presentation

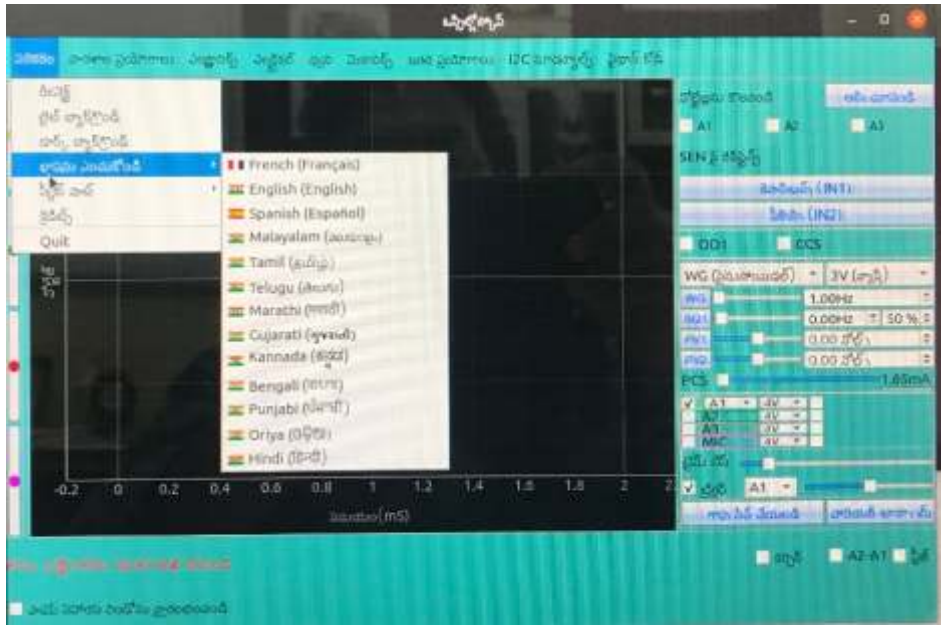
A weekly discussion on topics of scholor's (JRF / SRF / RA / PDF) choice was held, for half hour duration, every Wednesday at 4 pm in Online mode. The presentations were given in alternate week by one of the JRF or SRF scholar and by one of the RA or PDF from different groups of IUAC. This provided an opportunity for everybody to present the work being carried put, enriching academics.

6.2.4 Teaching lab Activities

V.V.V.Satyanarayana and Ajith Kumar B.P.

The Teaching Lab was established in 2005 as a part of IUAC.s outreach program, mainly develop computer interfaced laboratory equipment and training college/university teachers. The hardware and software developed under this project are open sourced. ExpEYES-17 hardware is used for providing training on computer interfaced science experiments. ExpEYES (Experiments for Young Engineers and Scientists) can be considered as a device that can convert an ordinary computer to a collection of laboratory equipment like oscilloscope, function generator, frequency counter, DC power supply, thermometer, pressure gauge, etc. These functions are made available on a set of analog and digital input/output terminals on the top side of ExpEYES controlled through a Graphical User Interface.

One training program was conducted in on-line mode using during 28th September – 5th October 2020. Moodle, open-source learning platform is used for this training program. Multiple language script for ExpEYES was developed in French, Spanish, Malayalam, Telugu for both GUI and Help menus. For Tamil, Gujarati and Marathi scripts, only GUI was completed.



Telugu Language Script for ExpEYES

6.3 LIBRARY

Priyambada Nayak

Salient features

Working hours:	Round the clock, all days of the week
Total Books:	~2920 (broadly covering the subjects Nuclear Physics, Materials Science, Nanotechnology, Electronics, Computer Science, Radio-biology, Radiation Physics, Vacuum Instrumentation, Cryogenics, Atomic Physics, Mathematical Physics, Quantum Mechanics, Astrophysics etc.
Current E-Journals:	> 2500
Bound Journals:	~8500
Laboratory Reports:	~900 (from nearly 50 labs)
Newsletters, House magazines etc.	50
Databooks, Manuals etc.:	~550
Ph.D. Thesis:	176
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 technicals 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 "KOHA" has been used for the computerization of library documents. Apart from the current online journals, Journal archives (AIP, IOP, APS, ACS, Science Direct, Springer, Science, Nature, IEEE) are also being subscribed by the library. **"Turn-it-in" and "URKUND"**, the originality check softwares are being used to prevent plagiarism. "Web of Science" is being subscribed by the library and used by the scholars for citation analysis and other purposes. The library is a member of **e-Shodh Sindhu** Consortium and more than 2500 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 ACADEMIC ACTIVITIES HELD IN 2020 - 2021

April

8 - 9	**IUAC School on Materials Science at Sikkim University, Gangtok** (Contact Person: Dr. A. Tripathi and Prof. S. Mukhopadhyay)
18 - 21	**School on Geochronology** (Contact Person: Dr. S. Chopra)
22	**Acquaintance program at RMLAU, Faizabad, UP** (Contact Persons: Ms. K.S. Golda and Prof. K. K. Varma)
20 - 24	**Symposium on Quantum world: Active learning in the laboratory** (Contact Person: Prof. O. S. K. S. Sastri, CUHP and Mr. V.V.V. Satyanarayana)
27-	**Training Programme on Computer Interfaced Science Experiments**
May 2	(Contact Person: Mr. V.V.V. Satyanarayana)

June

1 - 26	**Summer Programme for B.Sc. (Physics) Students** (Contact Person: Dr. S. A. Khan)

July

5 - 7	**Users' Workshop**
8	**68th AUC Meeting**

August

10-11	**JRF/SRF/RA Six Monthly Presentations** (Contact Person: Dr. A Tripathi)
17	**PhD Program: Monsoon Semester Starts** (Contact Person: Dr. S. Muralithar)
20	**JNU/IUAC Academic Committee Meeting** (Contact Person: Dr. S. Muralithar)

September

10	**IUAC Acquaintance Programme at Goa University, Goa** (Contact Persons: Dr. S. Nath and Dr. Rajeshkumar Shankar Hyam)
14 - 18	**School on Nuclear Structure** (Contact Person: Dr. R.P. Singh)
22 - 23	**Workshop on HR-SIMS/AMS** (Contact Persons: Mr. S. Ojha and Dr. Pankaj Kumar)
28 – 3 Oct.	**Training Programme on Computer Interfaced Science Experiments** (Contact Person: V.V.V. Satyanarayana)

October

8 - 12	**International School on Ion Beams in Materials Science** (Contact Persons: Dr. I. Sulania and Dr. K. Asokan)
13 - 16	**6th International Conference on Ion Beams in Materials Engineering and Characterization** (Contact Persons: Dr. F. Singh and Dr. A. Tripathi)

November	
3-4	**IUAC School on Nuclear Physics, in Central University, Tamil Nadu** (Contact Persons: Dr. N. Madhavan and Prof. V. Madhurima)
5 - 6	**School on "ECR Ion Source Technology: Opportunities and Future Challenges** (Contact Person: Dr. Pravin Kumar)
16-20	**Advanced Workshop on In-Silico Quantum Modelling Studies** Contact Persons (Dr. S Mookerjee and Dr. S.A. Khan)
	Pelletron Preventive Maintenance
23 - 28	**Modeling and Simulation using GEANT4 in Physics** (Contact Person: Dr. P. Sugathan)
December	
16 - 18	**Users' Workshop**
19	**Foundation Day Programme & 69th AUC Meeting**
January	**Ph.D. Program: Semester** (Contact Person: Dr. S. Muralithar)
February	
17	**JNU/IUAC Academic Committee Meeting** (Contact Person: Dr. S. Muralithar)
22	**JRF/SRF/RA/PDF Six Monthly Presentations** (Contact Person: Dr. A. Tripathi)
24 - 26	**Academic Group presentations** (Contact Person Dr. S. Ghosh)
28	**National Science Day** (Contact Person: Mr. Abhishek Rai)
March	**Linac Beam Campaign**
9 -10	**Presentations on AY/FY 2020-21 and plans for AY/FY 2021-22** (Contact Person: Dr. N. Madhavan)

6.5 FORTHCOMING EVENTS: 2021

April	
7	**Acquaintance Prog. on Geochronology facility at IUAC** (Contact persons: Mr. S Ojha, Dr. Pankaj Kumar.)
8 - 9	**IUAC School on Materials Science at Sikkim University, Gangtok** (Contact Persons: Dr. A. Tripathi and Prof. S. Mukhopadhyay)
May	
3 - 8	**Training Programme on Computer Interfaced Science Experiments** (Contact Persons: Dr Kundan Singh, Mr. VVV Satyanarayana)
June	
1 - 26	**Summer Programme for B.Sc. (Physics) Students** (Contact Persons: Dr. Sarvesh Kumar, Mr. Ashish Sharma, Mr. Sanjay Kedia)
2 – 3	**Advanced workshop on In-Silico Quantum Modelling Studies** (Contact Persons: Dr S. Mookerjee and Dr S.A. Khan)
9 - 11	**School on AMS and HR-SIMS** (Contact persons: Dr. Pankaj Kumar, Mr. S. Ojha)
23-24	**Workshop on Utilization of THz radiation in the field of Materials Science.** (Contact Persons: Dr. Ambuj Tripathi, Dr. Subhendu Ghosh)
25	**Workshop on Utilization of THz radiation in the field of Biological Science.** (Contact Person: Dr. Asitikantha Sarma, Dr. Ambuj Tripathi, Dr. Subhendu Ghosh)
28-29	**Workshop on INGA Recent results and future perspectives** (Contact Persons: Dr. R.P. Singh, Mr. Yashraj)
July	
5 - 7	**Users' Workshop** (Contact person: Dr. S. Chopra)
8	**70th AUC Meeting**
27 - 28	**Workshop on Artificial Intelligence, Machine learning and computational intelligence** (Contact Persons: Dr. J. Antony and Dr B.K. Sahu)
August	
10 - 11	**JRF/SRF/RA Six Monthly Presentations** (Contact Person: Dr. A Tripathi) **PhD Program:** (Contact Person: Dr. S. Muralithar)
25	**JNU/IUAC Academic Committee Meeting** (Contact Person: Dr. S. Muralithar)
17 - 20	**4th National School on Heavy ion radiation biology** (Contact person: Dr. A. Sarma)

23 - 24	**Workshop on "Physics studies with recoil separators"** (Contact Persons: Dr. N. Madhavan, Dr. S. Nath, Dr. J. Gehlot)
September	
7 - 8	**Workshop on ion beam induced sensors** (Contact persons: Dr. V.V. Sivakumar, Dr. I. Sulania)
20 - 24	**School on Nuclear structure using gamma ray spectroscopy** (Contact Persons: Dr. R.P. Singh and Dr. R. Kumar)
	Lectures on Beam Instrumentation by Dr.Rahul Singh and Dr. Peter Forck, GSI (As part of the VAJRA faculty scheme, SERB) (Contact Persons: Dr. G.O. Rodrigues)
October	
4 - 9	**Workshop on 'Teaching lab'** (Contact persons: Mr. V.V.V. Satyanarayana, Dr. Kundan Singh)
5 - 8	**International Conference on Nanostructuring with Ion Beams at Bhubaneswar (Co-organised with IOP / IIT / NISER)** (Contact person: Dr. A.Tripathi)
25 - 30	**School on Detector Simulation** (Contact person: Dr. P Sugathan)
November	
2 - 3	**Workshop on "Frontier of research with magnetically confined plasma and future perspectives"** (Contact persons: Dr. G.O. Rodrigues, Dr. Pravin Kumar)
9 – 12	**School on Microscopic Characterization Techniques (TEM/SEM/AFM)** (Contact persons: Dr. D. Kabiraj, Dr. S.A. Khan)
15 – 20	**School on Nuclear reactions** Contact Persons: Dr. S. Nath, Dr. K.S. Golda
17 – 18	**Atomic-Molecular Physics Workshop** (Contact persons: Mr. Deepak Swami and Dr. C.P. Safvan)
23 - 25	**Chronological systematics and their applications in Earth Sciences** (Contact persons: Mr. S Ojha, Dr Pankaj Kumar, Dr. S. Chopra)
	Pelletron Preventive Maintenance
December	
16 - 18	**Users' Workshop** (Contact person: Dr. S. Chopra)
19	**Foundation Day Programme & 71th AUC Meeting**

6.6 LIST OF Ph.D AWARDEE

The following scholars have completed their Ph.D thesis work during 2020-21.

Ms Anuradha: Nanostructuring of Oxides Using Ion Beam and Their Thermoelectric Properties.

Mr. Anup Choudhury: Design, development & application of a helium liquefier using Gifford Mcmahon cryocooler.

Mr. Sugam Kumar: Design and Setup of a Penning Trap for the Study of Ions in Extreme Laser Fields.

Mr. Jitendra Singh: Conducting polymer based hybrid nanocomposites and their response under energetic ion irradiation for multifunctional applications.

6.7 LIST OF PUBLICATIONS IN THE YEAR 2020-21

A. NUCLEAR PHYSICS

1. **Development of a time of flight spectrometer based on position sensitive multi-wire proportional counters for fission fragment mass distribution studies**, Akhil Jhingan, N. Saneesh, M. Kumar, Ruchi Mahajan, Meenu Thakur, Gurpreet Kaur, K. Kapoor, Neeraj Kumar, M. Shareef, R. Dubey, S. Appannababu, E. Prasad, Hardev Singh, K. S. Golda, R. Ahuja, B. R. Behera, and P. Sugathan, *Rev. Sci. Instrum.* ***92****, 033309 (2021)*.

2. **Probing entrance channel effects in fusion-fission dynamics through neutron multiplicity measurement of ^{208}Rn**, Neeraj Kumar, Shashi Verma, Shabnam Mohsina, Jhilam Sadhukhan, K. Rojeeta Devi, A. Banerjee, N. Saneesh, M. Kumar, Ruchi Mahajan, Meenu Thakur, Gurpreet Kaur, Anjali Rani, Neelam, Abhishek Yadav, Kavita, Rakesh Kumar, Unnati, S. Mandal, Suresh Kumar, B. R. Behera, K. S. Golda, A. Jhingan and P. Sugathan, *Phys. Lett. B* ***814****, 136062 (2021)*.

3. **Evidence of antimagnetic rotational motion in ^{103}Pd**, A. Sharma, R. Raut, S. Muralithar, R. P. Singh, S. S. Bhattacharjee, S. Das, S. Samanta, S. S. Ghugre, R. Palit, S. Jehangir, N. Rather, G. H. Bhat, J. A. Sheikh, S. S. Tiwary, Neelam, P. V. Madhusudhana Rao, U. Garg and S. K. Dhiman, *Phys. Rev. C* ***103****, 024324 (2021)*.

4. **Studying multi-nucleon transfer reaction in a recoil mass spectrometer**, Rohan Biswas, Sunil Kalkal and S. Nath, *Eur. Phys. J. A* ***57****, 9 (2021)*.

5. **Performance results of National Array of Neutron Detectors (NAND) facility at IUAC**, N. Saneesh, K. S. Golda, A. Jhingan, S. Venkataramanan, T. Varughese, Mohit Kumar, Meenu Thakur, Ruchi Mahajan, B. R. Behera, P. Sugathan, A. Chatterjee and M. B. Chatterjee, *Nucl. Instrum. Methods A* ***986****, 164754 (2021)*.

6. **Multiphonon longitudinal wobbling in ^{127}Xe**, S. Chakraborty, H. P. Sharma, S. S. Tiwary, C. Majumder, A. K. Gupta, P. Banerjee, S. Ganguly, S. Rai, Pragati, Mayank, S. Kumar, A. Kumar, R. Palit, S. S. Bhattacharjee, R. P. Singh and S. Muralithar, *Phys. Lett. B* ***811****, 135854 (2020)*.

7. **Competing asymmetric fusion-fission and quasifission in neutron-deficient sub-lead nuclei**, Shilpi Gupta, K. Mahata, A. Shrivastava, K. Ramachandran, S. K. Pandit, P. C. Rout, V. V. Parkar, R. Tripathi, A. Kumar, B. K. Nayak, E. T. Mirgule, A. Saxena, S. Kailas, A. Jhingan, A. K. Nasirov, G. A. Yuldasheva, P. N. Nadtochy and C. Schmitt, *Phys. Lett. B* ***803****, 135297 (2020)*.

8. **Evolution of collectivity and shape transition in ^{66}Zn**, S. Rai, U. S. Ghosh, B. Mukherjee, A. Biswas, A. K. Mondal, K. Mandal, A. Chakraborty, S. Chakraborty, G. Mukherjee, A. Sharma, I. Bala, S. Muralithar and R. P. Singh, *Phys. Rev. C* ***102****, 064313 (2020)*.

9. **Evaporation residue cross section in the ^{37}Cl+^{68}Zn fusion reaction near the Coulomb barrier**, Amit Chauhan, Rinku Prajapat, Gayatri Sarkar, Moumita Maiti, Rishabh Kumar, Malvika, Gonika, J. Gehlot, S. Nath, A. Parihari and N. Madhavan, *Phys. Rev. C* ***102****, 064606 (2020)*.

10. **Effect of nuclear structure and fissility on quasifission**, G. Mohanto, Sukanya De, A. Parihari, P. C. Rout, K. Ramachandran, K. Mahata, E. T. Mirgule, Ramandeep Gandhi, Sangeeta, M. Kushwaha, B. Srinivasan, S. Santra, A. Shrivastava, S. P. Behera, B. J. Roy, A. Jhingan, B. K. Nayak and A. Saxena, *Phys. Rev. C **102**, 044610 (2020)*.

11. **Fusion studies in ^{35,37}Cl+^{181}Ta reactions via evaporation residue cross section measurements**, P. V. Laveen, E. Prasad, N. Madhavan, A. K. Nasirov, J. Gehlot, S. Nath, G. Mandaglio, G. Giardina, A. M. Vinodkumar, M. Shareef, A. Shamlath, S. K. Duggi, P. Sandya Devi, Tathagata Banerjee, M. M. Hosamani, Khushboo, P. Jisha, Neeraj Kumar, Priya Sharma and T. Varughese, *Phys. Rev. C **102**, 034613 (2020)*.

12. **Role of neutron transfer in the sub-barrier fusion cross section in ^{18}O+^{116}Sn**, Nabendu Kumar Deb, Kushal Kalita, Harun Al Rashid, S. Nath, J. Gehlot, N. Madhavan, Rohan Biswas, Rudra N. Sahoo, Pankaj K. Giri, Amar Das, Tapan Rajbongshi, Anamika Parihari, Niraj K. Rai, Saumyajit Biswas, Khushboo, Amritraj Mahato, B. J. Roy, A. Vinayak and Anjali Rani, *Phys. Rev. C **102**, 034603 (2020)*.

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14. **Metastable states from multinucleon excitations in ^{202}Tl and ^{203}Pb**, S. G. Wahid, S. K. Tandel, Saket Suman, M. Hemalatha, Anurag Patel, Poulomi Roy, A. Y. Deo, Pragati, P. C. Srivastava, Bharti Bhoy, S. S. Bhattacharjee, R. P. Singh, S. Muralithar, P. Chowdhury, R. V. F. Janssens, M. P. Carpenter, T. L. Khoo, F. G. Kondev, T. Lauritsen, C. J. Lister, D. Seweryniak, S. Zhu, S. Rai and A. Sharma, *Phys. Rev. C **102**, 024329 (2020)*.

15. **Role of neutron transfer in sub-barrier fusion**, Rudra N. Sahoo, Malika Kaushik, Arshiya Sood, Arzoo Sharma, Swati Thakur, Pawan Kumar, Md. Moin Shaikh, Rohan Biswas, Abhishek Yadav, Manoj K. Sharma, J. Gehlot, S. Nath, N. Madhavan, R. G. Pillay, E. M. Kozulin, G. N. Knyazheva, K. V. Novikov and Pushpendra P. Singh, *Phys. Rev. C **102**, 024615 (2020)*.

16. **Spectroscopic study of ^{38}K above the 31.67 μs isomer**, Rozina Rahaman, Abhijit Bisoi, Y. Sapkota, Anik Adhikari, Ananya Das, S. Sarkar, M. Saha Sarkar, A. Goswami, S. Ray, M. Roy Basu, Debasmita Kanjilal, Somnath Nag, K. Selvakumar, N. Madhavan, S. Muralithar and R. K. Bhowmik, *Phys. Rev. C **102**, 024315 (2020)*.

17. **Quasielastic scattering measurements in the ^{28}Si+^{142,150}Nd systems**, Saumyajit Biswas, A. Chakraborty, A. Jhingan, D. Arora, B. R. Behera, Rohan Biswas, Nabendu Kumar Deb, S. S. Ghugre, Pankaj K. Giri, K. S. Golda, G. Kaur, A. Kumar, M. Kumar, B. Mukherjee, B. K. Nayak, A. Parihari, N. K. Rai, S. Rai, R. Raut, Rudra N. Sahoo and A. K. Sinha, *Phys. Rev. C **102**, 014613 (2020)*.

18. **Lifetime measurements in ^{104}Pd**, C. Majumder, H. P. Sharma, S. Chakraborty, S. S. Tiwary, R. P. Singh, S. Muralithar, I. Bala, S. S. Bhattacharjee, R. Garg, Neelam, A. Sharma and P. V. Madhusudhana Rao, *J. Phys. G **47**, 125104 (2020)*.

19. **Indication of γ-vibration in ^{123,125,127}I**, S. Chakraborty, H. P. Sharma, S. S. Tiwary, C. Majumder, P. Banerjee, S. Ganguly, S. Kumar, A. Kumar, A. Kumar, R. P. Singh and S. Muralithar, *J. Phys. G **47**, 095104 (2020)*.

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23. **Structure of positive parity states in ^{139}Pm**, S. S. Tiwary, H. P. Sharma, S. Chakraborty, C. Majumder, A. K. Gupta, S. Modi, P. Arumugam, P. Banerjee, S. Ganguly, K. Rojeeta Devi, Neelam, S. Kumar, S. K. Chamoli, A. Sharma, V. V. Jyothi, Mayank, A. Kumar, S. S. Bhattacharjee, I. Bala, S. Muralithar and R. P. Singh, *Phys. Scr.* ***95****, 095304 (2020).*

24. **Effect of projectile breakup in the system ^{19}F+^{154}Sm**, Amritraj Mahato, Pankaj K. Giri, D. Singh, Nitin Sharma, Sneha B. Linda, Harish Kumar, Suhail A. Tali, Nabendu K. Deb, M. Afzal Ansari, R. Kumar, S. Muralithar and R. P. Singh, *Indian J. Pure Appl. Phys.* ***58****, 386 (2020)*.

25. **Disentangling of incomplete fusion dynamics at low energies ≈ 4-6 MeV/A**, Pankaj K. Giri, Amritraj Mahato, D. Singh, Sneha B. Linda, Harish Kumar, Suhail A. Tali, M. Afzal Ansari, R. Kumar, S. Muralithar and R. P. Singh, *Indian J. Pure Appl. Phys.* ***58****, 371 (2020)*.

26. **Systematic study of projectile break-up on fusion cross-sections at energies ≈ 4-7 MeV/nucleon: Recent results**, Mohd. Shuaib, Vijay R. Sharma, Abhishek Yadav, Ishfaq M. Bhatt, Manoj Kumar Sharma, Pushpendra P. Singh, Devendra P. Singh, Unnati Gupta, R. Kumar, S. Muralithar, R. P. Singh, B. P. Singh and R. Prasad, *JPS Conf. Proc.* ***32****, 010015 (2020)*.

27. **A comprehensive analysis of incomplete fusion reactions in ^{16}O+^{159}Tb System**, B. P. Singh, Mohd. Shuaib, Vijay R. Sharma, Abhishek Yadav, Pushpendra P. Singh, Manoj Kumar Sharma, Devendra P. Singh, Unnati Gupta, K. S. Golda, R. Kumar, S. Muralithar, R. P. Singh, H. D. Bhardwaj and R Prasad, *JPS Conf. Proc.* ***32****, 010012 (2020)*.

B. MATERIALS SCIENCE

1. **Intense ionizing irradiation-induced atomic movement toward recrystallization in 4H-SiC**, A. Chakravorty, B. Singh, H. Jatav, S. Ojha, J. Singh, D. Kanjilal, D. Kabiraj, *Journal of Applied Physics, 128 (16), art. no. 165901 (2020)*.

2. **Phase dependent radiation hardness and performance analysis of amorphous and polycrystalline Ga_2O_3 solar-blind photodetector against swift heavy ion irradiation,** D. Kaur, P. Vashishtha, S. A. Khan, P. K. Kulriya, G. Gupta, M. Kumar, *Journal of Applied Physics, 128 (6), art. no. 0019786 (2020*).

3. **Investigation of the spectral characteristics of silicon-vacancy centers in ultrananocrystalline diamond nanostructures and single crystalline diamond** S. Kunuku, Chen, Y.-C., Chen, C.-H., K. Asokan, Chang, W.-H., Niu, H., Leou, K.-C., Lin, I.-N., *Journal of Applied Physics, 127 (3), art. no. 5123263 (2020)*.

4. **Effect of thermal annealing on thermoelectric properties of $Bi_xSb_{2-x}Te_3$ thin films grown by sputtering,** M. Bala, A. Masarrat, V. Kumar, S. Ojha, K. Asokan, S. Annapoorni, *Journal of Applied Physics, 127 (24), art. no. 0002576 (2020)*.

5. **Excitation induced enhancement of spectral response and energy transfer mechanisms in Fe/Sm modified ZnO phosphors,** P. Kaur, S. Kaur, Kriti, D. Arora, P. Vashishtha, G. Gupta, Chen, C.-L., Dong, C.-L., K. Asokan, D. P. Singh, *Journal of Applied Physics, 128 (14), art. no. 143104 (2020)*.

6. **Swift heavy ion irradiation-induced modifications in the electrical and surface properties of β-Ga_2O_3,** N. Manikanthababu, B. R. Tak, K. Prajna, S. Sarkar, K. Asokan, D. Kanjilal, S. R. Barman, R. Singh, B. K. Panigrahi, *Applied Physics Letters, 117 (14), art. no. 142105-1 (2020)*.

7. **Fabrication of Conducting Nanochannels Using Accelerator for Fuel Cell Membrane and Removal of Radionuclides: Role of Nanoparticles,** O. Prakash, A. M. Mhatre, R. Tripathi, A. K. Pandey, P. K. Yadav, S. A. Khan, P. Maiti, *ACS Applied Materials and Interfaces, 12 (15), pp. 17628-17640 (2020)*.

8. **Phase-Engineered Molybdenum Telluride/Black Phosphorus Van der Waals Heterojunctions for Tunable Multivalued Logic**, Y. Hassan, P. K. Srivastava, B. Singh, M. S. Abbas, F. Ali, W. J. Yoo, C. Lee, *ACS Applied Materials and Interfaces, 12 (12), pp. 14119-14124 (2020)*.

9. **Microfluidic Affinity Sensor Based on a Molecularly Imprinted Polymer for Ultrasensitive Detection of Chlorpyrifos,** S. Nagabooshanam, S. Roy, S. Deshmukh, S. Wadhwa, I. Sulania, A. Mathur, S. Krishnamurthy, L. M. Bharadwaj, S. S. Roy, *ACS Omega, 5 (49), pp. 31765-31773 (2020)*.

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11. **RF magnetron sputtered Ag-Cu_2O-CuO nanocomposite thin films with highly enhanced photocatalytic and catalytic performance,** K. Sahu, A. Bisht, A. Pandey, A. Dutta, S. A. Khan, R. Singhal, T. Som, S. Mohapatra, *Applied Surface Science, 517, art. no. 146169 (2020)*.

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14. **Real-time synthesis and detection of plasmonic metal (Au, Ag) nanoparticles under monochromatic X-ray nano-tomography,** A. Bharti, K. H. Chae, N. Goyal, *Scientific Reports, 10 (1), art. no. 20877 (2020)*.

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24. **Raman scattering from irradiated nanocrystalline zinc oxide thin films: Perspective view on effects of energy loss, ion fluence, and ion flux,** H. Gupta, K. Joshi, S. K. Gautam, R. G. Singh, F. Singh, *Vacuum, 181, art. no. 109598 (2020)*.

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26. **Self-induced growth of GaN nanorod assembly on flexible niobium metal foil using laser molecular beam epitaxy,** C. Ramesh, P. Tyagi, S. Gautam, A. K. Mauraya, S. Ojha, G. Gupta, M. S. Kumar, S. S. Kushvaha, *Vacuum, 181, art. no. 109643 (2020)*.

27. **Structural and electronic-structure investigations of defects in Cu-ion-implanted SnO_2 thin films,** S. Chaudhary, H. Saraswat, D. Devi, P. Kulriya, F. Singh, Won S.-O., Shin H.-J., J. Parkash, A. Sharma, *Vacuum, 179, art. no. 109481 (2020)*.

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D. ATOMIC AND MOLECULAR PHYSICS

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15. **Localized surface plasmon resonance studies on Pd/C nano-composite system: Effect of metal concentration and annealing temperature,** P. K. Kulriya, V. N. Singh, D. C. Agarwal, S. Ojha and D. K. Avasthi, *Journal of Nanoscience and Nanotechnology* ***20****, 3859 (2020)*.

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37. **Tuning of structural and optical properties of Au nanoparticles in amorphous-carbon**, Ritu Vishnoi, Vikesh Chaudhary, Himanshu Dixit, Jyotsna Bhardwaj, Amena Salim, Ganesh D Sharma and Rahul Singhal*, Phys. Scr.* ***95*** *105002 (2020).*

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G. FABRICATION OF NUCLEAR TARGETS

1. **Fabrication of thin ^{140,142}Ce target foils for study of nuclear reaction dynamics**, Rohan Biswas, Abhilash S. R., Himanshi Gupta, G. R. Umapathy, Anit Dawar and S.Nath, *Vacuum* ***188****, 110159 (2021)*.

2. **Fabrication and characterization of thin ^{142,150}Nd targets for the study of dynamics of heavy-ion induced reactions**, Saumyajit Biswas, S. R. Abhilash, D. Kabiraj, Rohan Biswas, G. R. Umapathy, S. Ojha and A. Chakraborty, *Vacuum* ***186****, 110053 (2021)*.

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4. **Fabrication of ^{128}Te thin target for nuclear levels lifetime measurements**, Ravi Bhushan, Anand Pandey, Gourav Vaid, R. P. Singh, D. Kabiraj, D. Mehta, Ashutosh Kapil and S. K. Chamoli, *Nucl. Instrum. Methods A* ***983****, 164586 (2020)*.

5. **Carbon-backed thin tin (^{116}Sn) isotope target fabrication by physical vapor deposition technique**, Nabendu Kumar Deb, Kushal Kalita, Pankaj Kumar Giri, S. R. Abhilash, G. R. Umapathy, Rohan Biswas, Amar Das, D. Kabiraj, S. Chopra and M. Bhuyan, *J. Radioanal. Nucl. Chem.* ***326****, 97 (2020)*.

6. **Synthesis of thin isotopic samarium targets for elastic cross-section measurements**, Kavita Rani, Abhilash S. R., G. R. Umapathy, D. Kabiraj and B. R. Behera, *Nucl. Instrum. Methods A* ***963****, 163736 (2020)*.

6.8 LIST OF SEMINARS CONDUCTED IN THE YEAR 2020-21

S.No.	Date	Title	Name & Affiliation
1.	10/01/2020	Introduction and Industrial Application of CVD Diamond	Prof. T.G. Kim, Pusan University, South Korea
2.	27/01/2020	GSI and FAIR Facility: Beam Diagnostics Perspective	Dr. Rahul Singh, Beam Instrumentation Group, GSI & FAIR GmbH
3	20/02/2020	A new Mechanism of Ion Acceleration and their Interaction with Dense Magnetized Plasma	Mr. Atul Kumar, Institute for Plasma Research, Bhat, Gandhinagar
4.	27/02/2020	Smart 3D Materials : Flame based Advanced Nanostructuting and Applications	Prof. Yogendra Kumar Mishra, Mads Clausen Institute, NanaSYD, University of Southern Denmark
5.	18/03/2020	Melting of Shell Effects and Radiating Dumbbells – Two interesting ptoblrmd in Nuclear Physics.	Prof. V.M. Datar, INO Cell, TIFR, Mumbai
6.	18/03/2020	Nobel Prizes in Nuclear Physics	Prof. V.M. Datar, INO Cell, TIFR, Mumbai

6.9 LIST OF TECHNICAL MEMOS/REPORTS (2020 – 2021)

A. List of Technical Memos

S.No.	Reference No.	Title	Category	Authors
1.	IUAC/TM/RKG/2020-21	Test Report on "Troubleshooting the high voltage distribution gain match boxes for GDA/INGA lab"	Instrumentation	R.K. Gurjar. U.K. Rao
2.	IUAC/TM/VVVS/2020-21	Repairing of TWD Electronics of Pelletron Accelerator System At IUAC	Electronics And Instrumentation	V.V.V. Satyanarayana /Ashish Sharma / M. Sota / Vijay Patel / B.K. Sahu/Abhijit Sarkar/Rajan Joshi
3	IUAC/TM/VVVS/2020-21	Repairing of Phase Control Electronics of IUAC Pulsing System	Electronics And Instrumentation	V.V.V. Satyanarayana / Ashish Sharma/ B.K. Sahu/ Abhijit Sarkar
4.	IUAC/TM/RKG/2020-21	Test Report on "Troubleshooting the high voltage power supply (30KV/1mA) of Table top accelerator lab"	Instrumentation	R.K. Gurjar, U.K. Rao, Y. Mathur
5.	IUAC/TM/RKG/2020-21	Test Report on "Troubleshooting the Switch Mode Power Supplies"	Instrumentation	R.K. Gurjar, U.K.Rao, Y. Mathur
6.	IUAC/TM/PS/2020-21	Repairing of 6KW, 97MHz Solid State RF power amplifier of HCL	Instrumentation	Parmanand Singh, Yaduvansh Mathur and S. Venkataramanan

7.	IUAC/TM/PS/2020-21	Technical Memo on repairing and maintenance of 400W, 97MHz solid state RF power amplifiers for LINAC	Instrumentation	Parmanand Singh, Yaduvansh Mathur and S. Venkataramanan
8.	IUAC/ TM/PS/2020-21	Repairing of 25MW, 2.86GHz RF Modulator of DLS	Instrumentation	Parmanand Singh, Ashish Sharma, Yaduvansh Mathur, S. Venkataramanam, B.K. Sahu
9.	IUAC/TM/PS/2020-21	Repair of 2KW, 48.5MHz Solid state RF power amplifier of Spiral Buncher, HCI	Instrumentation	Parmanand Singh, Yaduvansh Mathur and S. Venkataramanan

B. List of Technical Reports.

S.No.	Reference No.	Title	Category	Name
1.	IUAC/TR/VVVS/2020-21	Stability Test of Beam Phase Lock of Multi-Harmonic Buncher of IUAC Pelletron Accelerator	Electronics And Instrumentation	V.V.V. Satyanarayana/ Ashish Sharma / Sarvesh Kumar / B.K. Sahu / Abhijit Sarkar
2.	IUAC/TR/VVVS/2020-21	Bead Pull Testing of DTL Resonator Cavity#2 at IUAC	Electronics And Instrumentation	V.V.V Satyanarayana, S.K. Kedia. Thomas Varughese / Ajith Kumar B.P.
3	IUAC/TR/TV/2020-21	Design, Fabrication and commissioning of mechanical support structure, water cooling system, diagnostic boxes, fix tuner and slow tuner for Drift Tube LINAC (DTL) at IUAC	Electronics And Instrumentation	T.Varughese, V.V.V. Satyanarayana, R. Hariwal, C.P. Safvan, Rajeev Ahuja & B.P. Ajith Kumar
4.	IUAC/TR/TV/2020-21	Road Sanitation Vehicle(RSV) Undertaken as a part of "Work from home" project during the COVID-19 lock down period-May-2020	Electronics And Instrumentation	T.Varughese, S.S.S.K. Sonti, S.K. Saini, Rajesh Kumar, Raj Kumar & Pankaj Baghel
5.	IUAC/TR/SKS/2020-21	Development of low level Rf (LLRF) Amplitude and Phase Control Electronics for High Current Injector RF Cavities	Instrumentation	S.K. Suman, Rajesh Kumar, V.V.V. Satyanarayana and C.P. Safvan

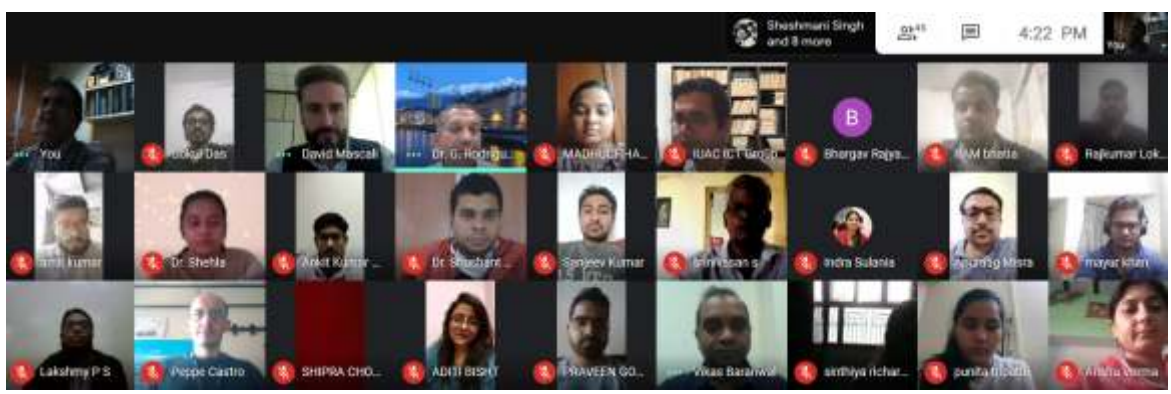
6.	IUAC/TR/SKS/2020-21	Development of low level Rf (LLRF) Frequency Tuner Control Electronics for High Current Injectors RF Cavities	Instrumentation	S.K. Suman, Rajesh Kumar, V.V.V. Satyanarayana and C.P. Safvan
7.	IUAC/T.R./TV/2020-21	Design and fabrication of an Isomer decay setup at HYRA focal plane	Instrumentation	T. Varughese, J. Gehlot, Gonika, S. Nath and N. Madhavan
8.	IUAC/TR/AS/2020-21	Design and development of FPGA based 4-Channel Digital Trigger Generator for IUAC-DLS	Electronics And Instrumentation	Ashish Sharma, B.K. Sahu and S. Ghosh
9.	IUAC/TR/AS/2020-21	Operation, Maintenance and Upkeep of Resonator Controllers for IUAC LINAC	Electronics And Instrumentation	Ashish Sharma, D.S. Mathuria, V.V.V. Satyanarayana, B.K. Sahu and A. Sarkar
10.	IUAC/TR/VVVS/2020-21	TWD Electronics Repair and stability Test of IUAC Pelletron Pulsing System	Electronics And Instrumentation	V.V.V. Satynanrayana, Ashish Sharma and Rajan Joshi
11.	IUAC/TR/JA/2020-21	Detector Gas Processor (Embedded Hardware and extended USB based control Interface using Lab View	Instrumentation	Joby Antony and Rajesh Nirdoshi
12.	IUAC/TR/JA/2020-21	Design of Digitizer Unit Using NI FPGA For Fast MRI DAS	Instrumentation	Joby Antony and Rajesh Nirdoshi
13.	IUAC/TR/AP/2021-21	Successful performance of LINAC resonators and Beam acceleration at IUAC	Accelerator	A. Pandey, A. Rai, G.K. Chaudhari. P. Patra, R.N. Dutt, K. Karmakar, D.S. Mathuria, A. Sharma, B. Karmakar, B.K. Sahu, R. Mehta, P.N. Prakash, A.C. Pandey
14.	IUAC/TR/RA/2020-21	Mechnical Design, Fabrication & Assembly of Drift Tube LINAC (DLT) at IUAC	Electronics And Instrumentation	R. Ahuja, J. Sacharias, T. Varughese, S.K. Kedia, P. Barua, Chandra Pal, V.V.V. Satyanarayana, C.P. Safvan and Ajith Kumr BP
15.	IUAC/TR/AS/2020-21	Operation, Maintenance and Upkeep of Piezo Controllers and Resonator Controllers for IUAC LINAC	Electronics And Instrumentation	Ashish Sharma, D.S. Mmathuria, V.V.V. Satyanarayana, B.K. Sahu, A. Sarkar

6.10 विद्यालयों, कार्यशालाओं, परिचय कार्यक्रमों, स्थापना दिवस और राष्ट्रीय विज्ञान दिवस का आयोजन

''इलेक्ट्रान साइक्लोट्रोन अनुनाद आयन स्रोत प्रौद्योगिकीः अवसर और चुनौतियां'', दो दिवसीय पाठशाला, 5–6 नवंबर, 2020, अंतर–विश्वविद्यालय त्वरक केंद्र, नई दिल्ली 110067

अंतर–विश्वविद्यालय त्वरक केंद्र द्वारा, आधुनिक संचार माध्यमों का उपयोग करते हुए, ''इलेक्ट्रान साइक्लोट्रोन अनुनाद आयन स्रोत प्रौद्योगिकी में अवसर और चुनौतियां'' विषय पर एक दो दिवसीय पाठशाला का 5–6 नवंबर, 2020 के दौरान सफल संचालन किया गया। प्रो अविनाश चन्द्र पाण्डेय, माननीय निदेशक महोदय (अंतर–विश्वविद्यालय त्वरक केंद्र) जी ने सभी प्रतिभागियों का स्वागत करते हुए पाठशाला का उद्घाटन किया। इस दौरान अपने सम्बोधन में उन्होंने आवेशित कणों के त्वरकों की आवश्यकता और मानवता के लिए महत्वपूर्ण प्रौद्योगिकियों में उनकी उपयोगिता पर प्रकाश डाला।

पाठशाला कार्यक्रम को 5 विभिन्न वर्गों (प्रस्तावना और इलेक्ट्रान साइक्लोट्रोन अनुनाद आयन स्रोत के बुनियादी घटक, प्रौद्योगिकी उन्नयन, प्लाज़्मा में महत्वपूर्ण भौतिक क्रियाएं और उनका मापन, नए अनुप्रयोग और परिणाम तथा तकनीकी उपयोगिता) में विभाजित किया गया था। कार्यक्रम में इन वर्गों के अंतर्गत, अंतर–विश्वविद्यालय त्वरक केंद्र से डॉ प्रवीण कुमार और डॉ गेर्राड ऑस्कर रोड्रिग्स् जी, टाटा मूलभूत अनुसंधान संस्थान, मुंबई से प्रो लोकेश त्रिवेदी जी, इंदिरा गाँधी परमाणु ऊर्जा संस्थान, कलपक्कम से सेवानिवृत्त प्रो रामकृष्णन भास्करन जी, परिवर्ती ऊर्जा साइक्लोट्रोन केंद्र, कलकत्ता के भूतपूर्व निदेशक और वर्तमान में अंतर–विश्वविद्यालय त्वरक केंद्र से मानद अतिथि वैज्ञानिक प्रो राकेश भंडारी जी, आई एन एफ एन, इटली से डॉ जी कास्त्रो जी और डॉ डेविड मस्कअली जी ने व्याख्यान दिए। देश के विभिन्न शिक्षण और शोध संस्थानों से लगभग 50 विधार्थियों, शोधार्थियों और शिक्षक गणों ने इस पाठशाला में भागेदारी की।



नाभिकीय ऊर्जा उत्पादन, अज्ञात खगोल भौतिकीय घटनाओं को प्रयोगशाला में समझने, कैंसर जैसी असाध्य बीमारी का हैड्रोन चिकित्सा द्वारा उपचार जैसी सम्भावनाओं के व्यापीकरण और उसमें चुनौतियों के साथ त्वरकों की नई भूमिका पर विशेषज्ञों के विचार अवश्य ही युवाओं को इस अनुसंधान और विकास के क्षेत्र में नए अवसर खोजने के लिए प्रेरित करेंगे। पाठशाला संचालन का मुख्य उद्देश्य कुछ कर्मठ और लगनशील युवाओं को इस शोध और विकास के क्षेत्र में मानव संसाधन के रूप में तैयार करना था। अतः अनुशिक्षण द्वारा 5 प्रतिभागियों का चयन किया गया, जिन्हें निकट भविष्य में उच्च स्तरीय प्रशिक्षण दिया जा सकता है। इसके लिए चयन समिति ने चुने हुए प्रतिभागियों के लिए माननीय निदेशक महोदय जी से अनुशंसा की है। उपसंहार मंतव्य के साथ डॉ प्रवीण कुमार ने पाठशाला का समापन और आयोजन समिति की ओर से सभी प्रतिभागियों,

आमंत्रित वक्ताओं और सहकर्मियों का पाठशाला के सफल संचालन के लिए धन्यवाद किया। वरिष्ठ वैज्ञानिक डॉ अम्बुज त्रिपाठी जी ने भी प्रतिभागियों के समक्ष अपने विचार रखे और उन्हें उज्जवल भविष्य की शुभकामनाएं दी। सभी प्रतिभागियों को ई–प्रमाण पत्र वितरित किए गए।

डॉ. राममनोहर लोहिया अवध विश्वविद्यालय, अयोध्या, उत्तर प्रदेश में अंतर–विश्वविद्यालय त्वरक केंद्र परिचय (एक्वेंटेंस) कार्यक्रम

संपर्क सूत्र : गोल्डा के.एस. (अंतर–विश्वविद्यालय त्वरक केंद्र) और के.के. वर्मा (डॉ. राम मनोहर लोहिया अवध विश्वविद्यालय)

डॉ. राममनोहर लोहिया अवध (आरएमएलए) विश्वविद्यालय में अंतर–विश्वविद्यालय त्वरक केंद्र परिचय कार्यक्रम जो कि 22/04/2020 को आयोजित होना निर्धारित था, महामारी की स्थिति के कारण 16/07/2020 को आयोजित किया गया। कार्यक्रम के लिए ऑनलाइन पंजीकरण दिनांक 01/06/2020 से 10/07/2020 तक खोला गया था और कुल 189 प्रतिभागियों ने कार्यक्रम के लिए पंजीकरण करवाया था।

कार्यक्रम का आयोजन 16 जुलाई 2020 को वेबएक्स प्लेटफॉर्म पर प्रातः 09:30 से 13:30 बजे तक किया गया। 189 पंजीकृत प्रतिभागियों में से 106 प्रतिभागियों (गणमान्य व्यक्तियों और वक्ताओं सहित) ने कार्यक्रम में सक्रिय रूप से भाग लिया। प्रतिभागियों में मुख्य रूप से डॉ. राममनोहर लोहिया अवध विश्वविद्यालय और इसके संबद्ध महाविद्यालयों और उत्तर प्रदेश के निकटवर्ती विश्वविद्यालयों के छात्र और शिक्षक सम्मिलित थे। अंतर–विश्वविद्यालय त्वरक केंद्र के निदेशक आचार्य ए.सी. पाण्डेय ने उद्घाटन वक्तव्य दिया और डॉ. राममनोहर लोहिया अवध विश्वविद्यालय के कुलपति आचार्य आनंद दीक्षित ने कार्यक्रम का उद्घाटन किया। आचार्य के.के. वर्मा, डॉ. राममनोहर लोहिया अवध विश्वविद्यालय, अयोध्या ने धन्यवाद ज्ञापित किया। कार्यक्रम में अंतर–विश्वविद्यालय त्वरक केंद्र के विद्वानों के तीन व्याख्यान हुए। डॉ. पंकज कुमार ने अंतर–विश्वविद्यालय त्वरक केंद्र में विभिन्न कण त्वरकों और भू–कालक्रम सुविधाओं का परिचय दिया। सुश्री गोल्डा के.एस. ने अंतर–विश्वविद्यालय त्वरक केंद्र में परमाणु भौतिकी सुविधाओं और अनुसंधान कार्यक्रमों का विवरण दिया। डॉ. एस.ए. खान ने अंतर–विश्वविद्यालय त्वरक केंद्र की पदार्थ विज्ञान सुविधाओं और अनुसंधान कार्यक्रमों के संबंध में चर्चा की। डॉ. यू.बी. सिंह, दीनदयाल उपाध्याय विश्वविद्यालय, गोरखपुर ने 'इलेक्ट्रॉनिक स्पटरिंग इन एयू थिन फिल्म्स : इन्फ्लुएंस ऑफ़ मीन फ्री पाथ ऑफ़ इलेक्ट्रॉन एंड फोनोन' विषय पर व्याख्यान दिया और 'नैनोकण तरल क्रिस्टल मिश्र एवं इसके संभावित अनुप्रयोग' विषय पर आचार्य राजीव मनोहर, लखनऊ विश्वविद्यालय, लखनऊ द्वारा एक व्याख्यान दिया गया। आचार्य के.के. वर्मा, डॉ. राममनोहर लोहिया अवध विश्वविद्यालय, अयोध्या ने 'प्रिपरेशन ऑफ़ इन–सीटू पॉलिमराइज्ड पीएमएमए/एमडब्ल्यूसीएनटी नैनोकंपोजिट्स, जीआईसी एंड ईजी एंड इट्स स्ट्रक्चरल, इलेक्ट्रिकल, डाइलेक्ट्रिक, थर्मल एंड स्ट्रक्चरल प्रोपर्टीज' विषय पर किए गए अपने कार्य को प्रस्तुत किया। कार्यक्रम में उपस्थित सभी लोगों को सहभागिता प्रमाणपत्र (इलेक्ट्रॉनिक प्रारूप में) वितरित किए गए।

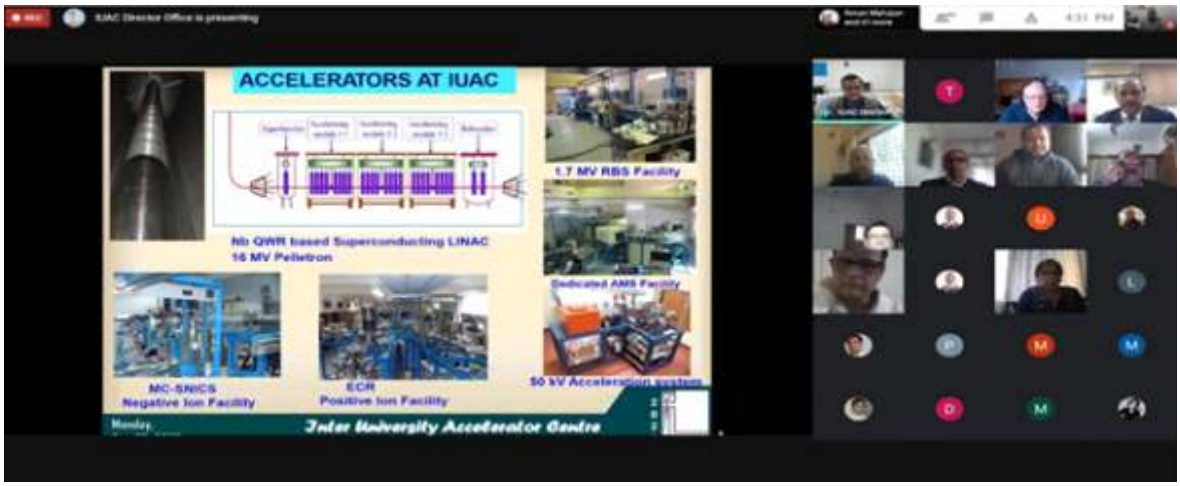
आचार्य आनंद दीक्षित, कुलपति, डॉ. राममनोहर लोहिया अवध विश्वविद्यालय, कार्यक्रम का उद्घाटन करते हुए।

चित्र 2. डॉ. यू. बी. सिंह, दीनदयाल उपाध्याय विश्वविद्यालय, गोरखपुर, कार्यक्रम में व्याख्यान देते हुए।

पदार्थ अभियांत्रिकी और अभिलक्षणन विषय में आयन पुंज पर ऑनलाइन माध्यम से 6ठा अंतर्राष्ट्रीय सम्मेलन (8–11 दिसंबर, 2020)

एफ. सिंह, ए. त्रिपाठी

अंतर–विश्वविद्यालय त्वरक केंद्र द्वारा पदार्थ अभियांत्रिकी और अभिलक्षणन पर द्रुतगामी भारी आयन पुंज (एसएचआईएमईसी) / पदार्थ अभियांत्रिकी और अभिलक्षणन आयन पुंज (आईबीएमईसी) पर आयोजित की जा रही द्विवार्षिक सम्मेलन की श्रृंखला 8–11 दिसंबर, 2020 को पदार्थ अभियांत्रिकी और अभिलक्षणन में आयन पुंज विषय पर ऑनलाइन माध्यम से आयोजित किए गए 6ठे अंतर्राष्ट्रीय सम्मेलन के रूप में जारी रही। इस सम्मेलन में 19 आमंत्रित वक्ता, (जर्मनी, फ्रांस, रूस, संयुक्त राज्य अमरीका, जापान और ऑस्ट्रेलिया से 11 सहित), 25 मौखिक प्रस्तुतियाँ (जर्मनी, ब्राजील, ताइवान से 3 सहित) और 85 पोस्टर प्रस्तुतियाँ हुईं। उद्घाटन व्याख्यान डॉ. आर. के. कोटनाला द्वारा दिया गया।



'पदार्थ विज्ञान में आयन पुंजों पर अंतर्राष्ट्रीय आभासी विद्यालय (आईबीएमएस 2020)' पर रिपोर्ट

इंद्रा सुलानिया और के. अशोकन

आईबीएमएस 2020 का आयोजन पदार्थ विज्ञान समूह, अंतर विश्वविद्यालय त्वरक केंद्र द्वारा 1 दिसंबर से 5 दिसंबर, 2020 तक किया गया था। इसमें आयन पुंज अन्योन्य क्रियाओं और विभिन्न पदार्थों में आयन पुंज के अनुप्रयोगों से संबंधित विभिन्न विषयों को सम्मिलित किया गया था। कार्यक्रम में 16 वक्ताओं (जर्मनी, फ्रांस, स्पेन, सिंगापुर, जापान और भारत) और 2 प्रदर्शन सत्रों को सम्मिलित किया गया था। इस विद्यालय में 100 से अधिक पंजीकृत प्रतिभागी थे और इनमें से अधिकांश प्रतिभागी विद्या वाचस्पति और परवर्ती वाचस्पति छात्र थे।

28 फरवरी, 2021 को राष्ट्रीय विज्ञान दिवस पर ऑनलाइन कार्यक्रम

राष्ट्रीय विज्ञान दिवस के उपलक्ष्य में 28 फरवरी, 2021 को अंतर–विश्वविद्यालय त्वरक केंद्र में एक ऑनलाइन कार्यक्रम आयोजित किया गया। कोविड महामारी के कारण सामाजिक दूरी के मानदंडों के अनुपालन में समारोह का आयोजन सिस्को

वेबएक्स प्लेटफॉर्म के माध्यम से आभासी माध्यम से किया गया था जिसका यूट्यूब पर भी सजीव प्रसारण किया गया था। इस आयोजन के लिए देश भर से विज्ञान स्नातक (भौतिक विज्ञान) प्रथम, द्वितीय और तृतीय वर्ष के छात्रों को ऑनलाइन पंजीकरण के लिए आमंत्रित किया गया था। संपूर्ण देश भर के विश्वविद्यालयों और महाविद्यालयों को कार्यक्रम सूची तथा फ्लायर के साथ संबद्ध ई–मेल (चित्र 1 में दर्शाया गया है) के माध्यम से निमंत्रण भेजा गया था। विभिन्न राज्यों से 600 से अधिक पंजीकरण प्राप्त हुए थे और कार्यक्रम में 433 प्रतिभागियों ने सक्रिय रूप से भाग लिया। कार्यक्रम का आरंभ अंतर–विश्वविद्यालय त्वरक केंद्र के निदेशक आचार्य अविनाश चंद्र पाण्डेय के स्वागत भाषण से हुआ। प्रख्यात भौतिक विज्ञानी और पद्मश्री आचार्य एच. सी. वर्मा, (सेवानिवृत्त) भारतीय प्रौद्योगिकी संस्थान, कानपुर द्वारा बीज वक्तव्य दिया गया था। उन्होंने अपने अध्यापन और व्याख्या के उत्कृष्ट कौशल के द्वारा 'प्रकृति से विज्ञान सीखना' विषयक व्यापक संगोष्ठी में विज्ञान के दृष्टिकोण से प्रकृति के रहस्य को उजागर किया। बीज वक्तव्य के पश्चात अंतर–विश्वविद्यालय त्वरक केंद्र में त्वरक और प्रायोगिक सुविधाओं का एक आभासी परिचर्चा सत्र आयोजित किया गया था, जिसमें अंतर–विश्वविद्यालय त्वरक केंद्र कर्मी प्रतिभागियों के प्रश्नों के उत्तर ऑनलाइन माध्यम से देने के लिए उपलब्ध थे। यह प्रथम अवसर है जब डिजिटल प्रतिभागिता प्रमाणपत्र बनाकर समस्त पंजीकृत प्रतिभागियों को ई–मेल के माध्यम से प्रेषित किए गए।

चित्र 1: राष्ट्रीय विज्ञान दिवस 2021 कार्यक्रम के लिए फ़्लायर

अंतर–विश्वविद्यालय त्वरक केंद्र का 31वां स्थापना दिवस समारोह

अंतर–विश्वविद्यालय त्वरक केंद्र का 31वां स्थापना दिवस समारोह 19 दिसंबर, 2020 को मनाया गया। समारोह का आयोजन सिस्को वेबएक्स प्लेटफॉर्म के माध्यम से आभासी रूप में किया गया था जिसका सजीव प्रसारण यूट्यूब पर भी किया गया था। देश भर में विद्यमान संस्थानों की बड़ी संख्या, अंतर–विश्वविद्यालय त्वरक केंद्र के उपयोगकर्ता समुदाय, सहयोगियों और अंतर–विश्वविद्यालय त्वरक केंद्र से संबद्ध गणमान्य व्यक्तियों को सूचित करने के लिए ई–मेल के माध्यम से एक फ्लायर (चित्र–1) प्रसारित किया गया था। कार्यक्रम का आरंभ अंतर–विश्वविद्यालय त्वरक केंद्र के निदेशक आचार्य अविनाश चंद्र पाण्डेय के 'स्वागत भाषण' से हुआ। उन्होंने अंतर–विश्वविद्यालय त्वरक केंद्र की नई गतिविधियों और उपलब्धियों पर एक संक्षिप्त रिपोर्ट भी प्रस्तुत की। जवाहरलाल नेहरू विश्वविद्यालय, नई दिल्ली के माननीय कुलपति और समारोह के मुख्य अतिथि आचार्य एम.जगदेश कुमार ने अध्यक्षीय भाषण दिया। आचार्य गगनदीप कांग, आचार्य, वेलकम ट्रस्ट रिसर्च लेबोरेटरी और क्रिश्चियन मेडिकल कॉलेज, वेल्लोर के जठरांत्र विज्ञान प्रभाग ने अपना बीज वक्तव्य दिया और कोविड –19 टीकाकरण की ओर कदम' विषयक व्यापक सेमिनार की सहायता से कोविड –19 के वैज्ञानिक विवरण और इसके टीकों की खोज को बखूबी समझाया। स्थापना दिवस समारोह का समापन विद्यालयी छात्रों और उनके शिक्षकों को समर्पित कार्यक्रम के साथ हुआ। यह स्थापना दिवस समारोह ऑनलाइन माध्यम से आयोजित किया गया था ताकि अंतर–विश्वविद्यालय त्वरक केंद्र की गतिविधियों के संबंध में महसूस किया जा सके और युवा छात्रों को विज्ञान के रोमांचक क्षेत्र के लिए प्रेरित किया जा सके। इसलिए अंतर–विश्वविद्यालय त्वरक केंद्र की प्रमुख शोध सुविधाओं की एक आभासी परिचर्चा और इसके पश्चात आठ मूल प्रयोगों का प्रदर्शन करके उनके संबंध में विद्यार्थियों और उनके शिक्षकों को जानकारी दी गई। अंतर–विश्वविद्यालय त्वरक केंद्र के वैज्ञानिक और अभियंता आभासी परिचर्चा और प्रायोगिक सुविधाओं के प्रदर्शन के दौरान छात्रों और उनके शिक्षकों के प्रश्नों के उत्तर देने और चर्चा करने के लिए उपलब्ध थे।

सिस्को वेबएक्स प्लेटफॉर्म के माध्यम से आयोजित किए गए इस ऑनलाइन कार्यक्रम में लगभग 431 प्रतिभागियों ने भाग लिया और यूट्यूब पर इसे कुल 1390 बार देखा गया । कार्यक्रम में भाग लेने वालों में देश भर के 34 संस्थानों के 358 छात्रों और 34 शिक्षकों ने कार्यक्रम में पंजीकरण करवाया था। स्थापना दिवस समारोह के दौरान अंतर–विश्वविद्यालय त्वरक केंद्र के पूर्व निदेशकों और परिवर्ती ऊर्जा साइक्लोट्रॉन केंद्र, कोलकाता; शासी बोर्ड के सदस्य; वैज्ञानिक सलाहकार समिति; अंतर–विश्वविद्यालय त्वरक केंद्र की त्वरक उपयोगकर्ता समिति आदि जैसे कई गणमान्य व्यक्तियों की उपस्थिति ने कार्यक्रम को अविस्मरणीय बना दिया।

सभी पंजीकृत छात्रों और उनके शिक्षकों को 'करंट साइंस' नामक पत्रिका की एक प्रति जिसमें डॉ. विक्रम साराभाई पर एक विशेष खंड सम्मिलित है, के साथ प्रतिभागिता प्रमाणपत्र डाक द्वारा भेजा गया।

चित्र xx. अंतर–विश्वविद्यालय त्वरक केंद्र के 31वें स्थापना दिवस समारोह का फ्लायर।

अंतर–विश्वविद्यालय त्वरक केंद्र, नई दिल्ली में गणतंत्र दिवस समारोह का आयोजन – 26 जनवरी, 2021

भारत प्रतिवर्ष 26 जनवरी को अत्यंत गर्व और उत्साह के साथ गणतंत्र दिवस मनाता है। यह प्रत्येक भारतीय नागरिक के लिए एक महत्वपूर्ण दिन है। यह आयोजन 26 जनवरी अर्थात् उस दिन होता है जिस दिन हमारा संविधान लागू हुआ था और भारत वास्तव में स्वतंत्र हुआ था व लोकतंत्र को अंगीकार किया गया था। भारत के प्रथम राष्ट्रपति डॉ. राजेन्द्र प्रसाद ने 26 जनवरी, 1950 को राजपथ पर आयोजित हुई गणतंत्र दिवस की परेड में भारतीय तिरंगे को फहराया था। इस वर्ष भारत ने अपना 72वां गणतंत्र दिवस मनाया था।

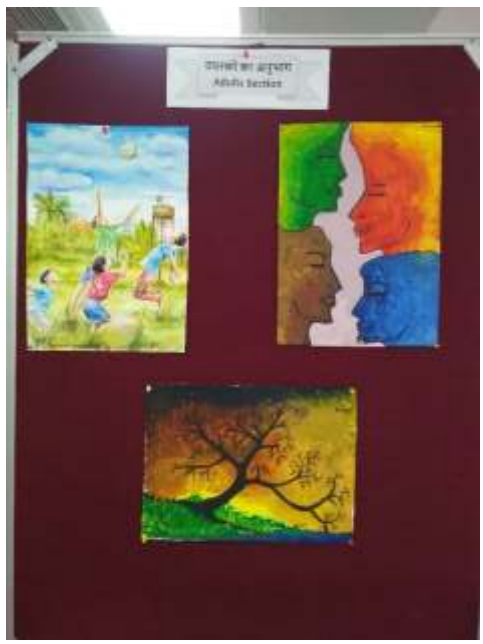
अंतर–विश्वविद्यालय त्वरक केंद्र, नई दिल्ली ने गणतंत्र दिवस, 2021 को कोविड–19 महामारी के दिशानिर्देशों की सावधानियों को ध्यान में रखकर मनाया था। आचार्य अविनाश चन्द्र पाण्डेय, निदेशक, अंतर–विश्वविद्यालय त्वरक केंद्र ने राष्ट्रीय ध्वज फहराया और उपस्थित स्टाफ सदस्यों को संबोधित किया। श्री अभिजीत सरकार, वैज्ञानिक–एच और डॉ. इंद्रा सुलानिया, वैज्ञानिक–ई ने कार्यक्रम का समन्वय किया।

अंतर–विश्वविद्यालय त्वरक केंद्र में वर्ष 2021 के कार्यक्रम का आयोजन निदेशक, अंतर–विश्वविद्यालय त्वरक केंद्र द्वारा गठित की गई खेल एवं सांस्कृतिक समिति द्वारा किया गया था। श्री अभिजीत सरकार इस समिति के अध्यक्ष और सुश्री इंद्रा सुलानिया, सर्वश्री बिशंबर कुमार, अंबुज मिश्रा, गौरव रतूड़ी, पद्मनाव पात्र, सुदर्शन शर्मा और डी.एस. मथुरिया सदस्य हैं।

इस बात पर बल दिया जाता है कि कोविड–19 महामारी के विस्तार को नियंत्रित करने के लिए सरकारी दिशानिर्देशों के अनुसार समस्त पूर्वोपायों का अनुपालन करते हुए गणतंत्र दिवस समारोह मनाया गया। इस कारणवश बाल कार्यक्रम/प्रदर्शन और विभिन्न खेल/प्रतिस्पर्धाएं आयोजित नहीं की गईं। समिति के सदस्यों, छात्रों और अन्य सहकर्मियों ने राष्ट्रगान और विभिन्न भाषाओं के विविध मधुर गीतों की प्रस्तुति में भाग लिया। इस आयोजन को सफल बनाने के लिए समिति के सदस्यों ने अपने अपने कर्तव्यों का भली–भांति निर्वहन किया।

अपने सहकर्मियों, उनके परिवार के सदस्यों, छात्रों व अन्य सभी की चित्रकारी की छिपी हुई प्रतिभा को सामने लाने के लिए यह नवगठित खेल एवं सांस्कृतिक समिति एक शानदार विचार के साथ सामने आई और अंतर–विश्वविद्यालय त्वरक केंद्र में प्रथम बार 'कला प्रदर्शनी' का आयोजन किया गया। केंद्र के कर्मचारियों, उनके परिवार के सदस्यों और छात्रों ने अपेक्षा से अधिक संख्या में कार्यक्रम में सक्रियतापूर्वक भाग लिया और उल्लेखनीय प्रतिक्रियाएं प्राप्त हुईं। लगभग 51 प्रतिभागियों के 115 से अधिक चित्रों को प्रदर्शित किया गया। निम्न चित्रों से कार्यक्रम की एक झलक मिलेगीः–


Save Water

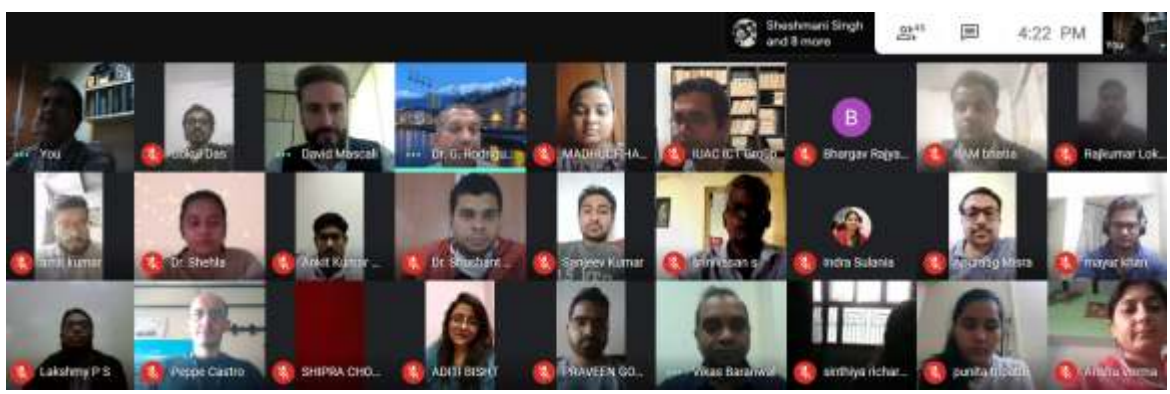


6.10 SCHOOLS, WORKSHOPS, ACQUAINTANCE PROGRAMMES, FOUNDATION DAY & NATIONAL SCIENCE DAY CELEBRATIONS

A Two-Days School on "Electron Cyclotron Resonance (ECR) Ion Source Technology: Opportunities and Challenges" 5-6 November, 2020, Inter University Accelerator Centre, New Delhi - 110067

Using modern communication technology, a two days school on "Electron Cyclotron Resonance Ion Source (ECR) Technology: Opportunities and Challenges" was successfully conducted at Inter University Accelerator Centre (IUAC) in online mode during 5-6 November, 2020. Prof Avinash Chandra Pandey, honourable Director of IUAC, welcomed all school participants and inaugurated the school. In his speech, he shed light on the need of charged particle accelerators and their applications in establishing technology for mankind.

The school programme was mainly based on 5 categories viz. Introduction and Basics of ECR Ion Source, Technology Evolution in ECR Ion Source, ECR Plasma Properties and Diagnostics, Novel Experiments and Results and Applications. Dr Pravin Kumar and Dr G O Rodrigues (both from IUAC, New Delhi, India), Dr Lokesh Tribedi (from TIFR, Mumbai, India), Prof R Baskaran (superannuated from IGCAR, Kalpakkam, India), DR Rakesh Bhandari (former Director of VECC, Kolkatta, India & honorary guest scientist, IUAC, New Delhi, India), Dr G Castro and Dr David Mascali (both from INFN, Italy) delivered the lectures in the school. About 50 external participants (students, scholars and faculties) participated in the school.



The expert opinions on the production of the nuclear energy, understanding the mysterious astrophysical events in the labs and treatment of the cancer by hadrontherapy with new role of accelerators and associated challenges in developing infrastructures will surely motivate the youth to find research opportunities in this direction. The main aim of this school was to develop human resources by providing the training to a few dedicated and enthusiastic young scholars. Therefore, based on performance in tutorials, 5 participants were selected by the committee for higher level of training and hand on experience. Further, the committee recommended their names for approval by the honourable Director. With concluding remarks and vote of thanks, Dr Pravin Kumar closed the school. On behalf of the organizing committee, he paid gratitude to all participants, speakers and colleagues for making the school a successful event. Dr Ambuj Tripathi, Senior Scientist, IUAC also expressed his views on the school and best wishes to all participants for their bright future. In the end, e-certificates have been issues to all participants.

IUAC Acquaintance Program at RMLA University, Ayodya, UP

Contact Persons: Golda K.S (IUAC) & K.K. Verma (RMLAU)

The IUAC acquaintance program at Dr. Rammanohar Lohia Avadh(RMLA) University which had been scheduled to be held on 22/04/2020 was conducted on 16/07/2020 due to the pandemic situation. The online registration for the program was open from 01/06/2020 to 10/07/2020 and 189 participants have registered for the program.

The program was conducted on 16th July from 09:30 to 13:30 on Webex platform. Out of 189 registered participants, 106 participants (including dignitaries and speakers) have attended the program effectively. The participants included mainly the students and faculties of RMLAU and its affiliated colleges and near by Universities in UP. Prof. A. C. Pandey, director IUAC has delivered the opening remarks and Prof. Anand Dixit, V.C. , RMLA University has inaugurated the program. Pof K. K. Verma RMLAU, Ayodhya has given the vote of thanks. There were three lectures from IUAC. Dr. Pankaj Kumar has given an introduction about the different partyicle accelerators and Geochronology facilities at IUAC. Ms. Golda K. S. has described the Nuclear Physics facilities and research programs at IUAC. Dr. S. A. Khan has talked about the Material Science Facilities and Research programs of IUAC. Dr. U. B. Singh, DDU University, Gorakhpur has delivered a talk on "Electronic sputtering in Au thin films : Influence of mean free path of electron and phonon". And a talk on "Nanoparticle liquid crystal composite and its potential applications" was delivered by Prof. Rajeev Manohar, University of Lucknow, Lucknow. Prof. K. K. Verma, RMLAU, Ayodhya presented their work on the "Preparation of In-Situ Polymerized PMMA/MWCNTs Nanocomposites, GIC and EG and its Structural,Electrical, Dielectric, Thermal and Structural Properties". Participation certificates (in electronic format)were distributed to all the attendees of the event.

Fig 1. Prof. Anand Dixit, V.C. , RMLA University is inaugurating the program.

Fig 2. Dr. U. B. Singh, DDU University, Gorakhpur delivering a talk in the program.

6th International Conference on Ion Beams in Materials Engineering and Characterization in online mode (Dec 8-11, 2020).

F Singh, A Tripathi

The biennial SHIMEC/IBMEC conference series being organized by IUAC continued in online mode as 6th International Conference on Ion Beams in Materials Engineering and Characterization on Dec 8-11, 2020. The conference had 19 invited speakers, (including 11 from Germany, France, Russia, USA, Japan and Australia), 25 Oral presentations (including 3 from Germany, Brazil, Taiwan) and 85 poster presentations. The inaugural talk was given by Dr RK Kotnala.

Report on International Virtual school on ion beams in Materials Science (IBMS2020).

Indra Sulania and K. Asokan

IBMS2020 was organized by Materials Science Group, Inter University Accelerator Centre, from 1st Dec to 5th Dec 2020. It has covered various topics related to ion beam interactions and applications of ion beams in various materials. There were 16 speakers (Germany, France, Spain, Singapore, Japan and India) and 2 demonstration sessions. This school had over 100 registered participants and most of these participants were PhD and post-doctoral students.

Online Program on National Science Day on 28th February 2021

To commemorate the National Science Day, an on-line program was organised at IUAC on 28th February 2021. In compliance with the social distancing norms due to the ongoing COVID pandemic the function was organized in a virtual mode through Cisco Webex platform along with live streaming on YouTube. B. Sc. Physics students of 1st, 2nd and 3rd year from all over the country were invited to register online for the event. An invitation email along with the flier (shown in figure 1) and the program schedule was sent to universities and colleges across the country. More than 600 registrations were received from different states and 433 participants actively participated in the program. The program began with the welcome address delivered by the Director, IUAC Prof. Avinash Chandra Pandey. The key-note address was delivered by the eminent physicist and Padma Shri Prof. H. C. Verma, (Retd.) IIT, Kanpur. Through his excellent skill of teaching and explanation, he unfolded the mystery of nature from the perspective of science in his comprehensive seminar entitled 'Learning Science from Nature'. A virtual interactive tour of the accelerator and experimental facilities at IUAC was organized after the keynote lecture, where the IUAC personnel explaining the facilities were available online to take up questions from the participants. This is the first time, when digital participation certificates were prepared and emailed to all the registered participants.

Figure 1: Flyer for the National Science Day 2021 Program

The Celebration of 31st Foundation Day of IUAC

The 31st Foundation day program of IUAC was celebrated on 19th. December 2020. The function was organised in virtual mode through Cisco Webex platform along with the live streaming on YouTube. A flier (figure - xx) was circulated through email to inform the vast number of schools spreading across the country, the user community of IUAC, the collaborators and the dignitaries associated to IUAC. The program started with the 'Welcome Address' of the Director, IUAC, Prof. Avinash Chandra Pandey. He also presented a brief report on the recent activity and achievement of IUAC. Prof. Jagadesh Kumar, Honourable Vice-Chancellor of Jawaharlal Nehru University, New Delhi and the Chief Guest of the function had delivered the Presidential Address. Prof. Gagandeep Kang, Professor, Welcome Trust Research Laboratory, and the Division of Gastrointestinal Sciences at the Christian Medical College, Vellore had kindly delivered the Key-note address and beautifully explained the scientific details of Covid-19 and the discovery of its vaccines with the help of a comprehensive seminar entitled 'The way forward for Covid-19 vaccines'. The foundation day program was ended with a program dedicated to the school students and their teachers. As this foundation day program was organised on-line so to give a feel about the activity of IUAC and to motivate the young students to the exciting field of science, a virtual tour of the major research facilities of IUAC followed by the demonstration of eight basic experiments were explained to the students and their teachers. During the virtual tour and the demonstration of the experimental facility, IUAC's scientists and engineers were available to interact and to answer the questions of the students and their teachers.

The online program was attended by about 431 participants in Cisco Webex platform and a total number of 1390 views had been recorded on YouTube. Among the participants, 358 students and 34 teachers from 34 schools spread across the country had registered in the program. During the celebration of the Foundation day, the presence of many dignitaries like the former directors of IUAC and Variable Energy Cyclotron Centre, Kolkata; members of the Governing Board; Scientific Advisory Committee; Accelerator User Committee of IUAC; etc. made the program memorable.

The participation certificate and a copy of the Journal named 'Current Science' with a special section on Dr. Vikram Sarabhai had been sent by post to all the registered students and their teachers.

Figure xx. Flier of the 31st. Foundation Day Program of IUAC

Celebration of Republic Day Programme 26th January 2021 at Inter-University Accelerator Centre (IUAC), New Delhi

Every year India celebrates Republic Day on 26th January with a lot of pride and fervour. It is an important day to every Indian citizen. It celebrates the day on which our constitution came into effect on 26th January, 1950 and India became truly independent and embraced democracy. The first president of India, Dr Rajendra Prasad, unfurled the Indian tricolour at the republic day parade at Rajpath on 26th January, 1950. This year, India celebrated its 72nd Republic day.

Inter-University Accelerator Centre (IUAC), New Delhi celebrated Republic Day 2021 with precautions of Covid-19 pandemic guidelines. Prof. Avinash Chandra Pandey, Director IUAC hoisted the flag and delivered Republic Day speech. Mr. Abhijit Sarkar, Scientist-H and Dr Indra Sulania, Scientist-E coordinated the programme.

This Republic Day Programme 2021 at IUAC was organized by a new Sports and Cultural Committee constituted by the Director, IUAC. Mr. Abhijit Sarkar is the Chairman of the committee and Indra Sulania, Bishambar Kumar, Ambuj Mishra, Gaurav Rathuri, Parmanava Patra, Sudershan Sharma and D. S. Mathuria are the members of the committee.

It is emphasized that the Republic day was celebrated with precautions as per government guidelines to contain the spread of Covid-19 pandemic. Due to that the activities /performances of children and various games /competitions were not organized. The committee members, students and other colleagues participated to perform the National Anthem and various melodious songs in different languages. The committee members perfectly performed their assigned duties to make this event successful.

This newly constituted Sports and Cultural Committee also came up with a brilliant idea to bring the hidden talent of painting of our colleagues, their family members and students to everyone and first time in IUAC, an ART-EXHIBITION was organized. Beyond the expectations, the employees of the centre, their family members and the students actively participated in the programme and overwhelming responses were received. More than 115 paintings of approximately 51 participants were exhibited. The photographs shown on page 188-190 give a glimpse of the programme.