

6. ACADEMIC ACTIVITIES

6.1 BEAM UTILIZATION BY USERS

6.1.1 LEIBF (Positive & Negative Ion) Beam Time Utilization and Experiments performed (April, 2015 to March, 2016)

| Users | No. of Shifts used (1 Shift =8Hrs.) | Project in | |
|---------------------------------|-------------------------------------|-------------------|----------------|
| | | Materials Science | Atomic Physics |
| A. Universities/Colleges | | | |
| Agra University | 7 | | 2 |
| Allahabad University | 4 | | 1 |
| AM University | 33 | 2 | 1 |
| Amity Eng. College | 3 | | 1 |
| Anna University | 13 | | 5 |
| Bangalore University | 9 | | 3 |
| BH University | 5 | | 2 |
| Calcutta University | 14 | 1 | 1 |
| CCSUniversity, Meerut | 5 | | 1 |
| DAV Indore | 3 | | 1 |
| Delhi University | 3 | | 1 |
| Delhi University | 21 | 1 | 1 |
| GG University, Bilaspur | 2 | | 1 |
| GND University | 3 | | 1 |
| Gulbarga University | 3 | | 1 |
| Himachal Pr. University | 7 | | 3 |
| HNB University | 3 | | 1 |
| Hyderabad University | 7 | | 1 |
| Karnataka University | 24 | 1 | |
| Kurukshetra University | 7 | | 3 |
| MD University, Rohtak | 1 | | |
| MS University, Baroda | 3 | | 1 |
| Mumbai University | 8 | | 3 |
| NEHUniversity | 2 | | |
| North Orissa University | 3 | | 1 |
| Presidency Coll.Chennai | 2 | | 1 |
| Pune University | 5 | | 2 |

| Users | No. of Shifts used (1 Shift =8Hrs.) | Project in | |
|--------------------------|-------------------------------------|-------------------|----------------|
| | | Materials Science | Atomic Physics |
| Punjab University | 39 | 2 | 2 |
| Rajasthan University | 13 | | 4 |
| Ratnagiri College | 3 | | 1 |
| S.N. College, Kerala | 2 | | 1 |
| Saurashtra University | 7 | | 1 |
| Stuttgart University | 4 | | 1 |
| Tezpur University | 6 | | 2 |
| UP Technical University | 3 | | 1 |
| Utkal University | 3 | | 1 |
| B. Institutions | | | |
| IBARC, Mumbai | 12 | | 3 |
| CSNSM, France | 3 | | 1 |
| Dayalbagh Inst., Agra | 7 | | 2 |
| IIT, Delhi | 9 | | 3 |
| IIT, Roorkee | 15 | 1 | |
| IOP, Bhubaneswar | 9 | | 2 |
| ISRO, Bangalore | 2 | | 1 |
| IUAC, New Delhi | 40 | 1 | 5 |
| IUC-DAE, Indore | 5 | | 2 |
| IUC-DAE, Kolkata | 21 | 1 | |
| SINP, Kolkata | 12 | 1 | |
| VECC, Kolkata | 3 | 1 | |
| C. Facility tests | | | |
| | 70 | | |
| Total | 488 | 12 | 72 |

6.1.2 Pelletron Beam Time Utilization and Experiments performed (April, 2015 to March, 2016)

| Users | No. of Shifts allotted | Project in | | | | |
|---------------------------------|------------------------|-----------------|-------------------|-------------------|----------------|-----|
| | | Nuclear Physics | Materials Science | Radiation Biology | Atomic Physics | AMS |
| A. Universities/Colleges | | | | | | |
| Agra University | 7 | | 2 | | | |
| Allahabad University | 4 | | 1 | | | |
| AM University | 33 | 2 | 1 | | | |
| Amity Eng. College | 3 | | 1 | | | |
| Anna University | 13 | | 5 | | | |
| Bangalore University | 9 | | 3 | | | |
| BH University | 5 | | 2 | | | |
| Calcutta University | 14 | 1 | 1 | | | |
| CCSUniversity, Meerut | 5 | | 1 | | | |
| DAV Indore | 3 | | 1 | | | |
| Delhi University | 3 | | 1 | | | |
| Delhi University | 21 | 1 | 1 | | | |
| GG University, Bilaspur | 2 | | 1 | | | |
| GND University | 3 | | 1 | | | |
| Gulbarga University | 3 | | 1 | | | |
| Himachal Pr. University | 7 | | 3 | | | |
| HNB University | 3 | | 1 | | | |
| Hyderabad University | 7 | | 1 | | | |
| Karnataka University | 24 | 1 | | | | |
| Kurukshetra University | 7 | | 3 | | | |
| MD University, Rohtak | 1 | | | 1 | | |
| MS University, Baroda | 3 | | 1 | | | |
| Mumbai University | 8 | | 3 | | | |
| NEHUniversity | 2 | | | 1 | | |
| North Orissa University | 3 | | 1 | | | |
| Presidency Coll.Chennai | 2 | | 1 | | | |

| Users | No. of Shifts allotted | Project in | | | | |
|--------------------------|------------------------|-----------------|-------------------|-------------------|----------------|-----|
| | | Nuclear Physics | Materials Science | Radiation Biology | Atomic Physics | AMS |
| Pune University | 5 | | 2 | | | |
| Punjab University | 39 | 2 | 2 | | | |
| Rajasthan University | 13 | | 4 | | | |
| Ratnagiri College | 3 | | 1 | | | |
| S.N. College, Kerala | 2 | | 1 | | | |
| Saurashtra University | 7 | | 1 | 1 | | |
| Stuttgart University | 4 | | 1 | | | |
| Tezpur University | 6 | | 2 | | | |
| UP Technical University | 3 | | 1 | | | |
| Utkal University | 3 | | 1 | | | |
| B. Institutions | | | | | | |
| BARC, Mumbai | 12 | | 3 | | | |
| CSNSM, France | 3 | | 1 | | | |
| Dayalbagh Inst., Agra | 7 | | 2 | | | |
| IIT, Delhi | 9 | | 3 | | | |
| IIT, Roorkee | 15 | 1 | | | | |
| IOP, Bhubaneswar | 9 | | 2 | | | |
| ISRO, Bangalore | 2 | | 1 | | | |
| IUAC, New Delhi | 40 | 1 | 5 | | | |
| IUC-DAE, Indore | 5 | | 2 | | | |
| IUC-DAE, Kolkata | 21 | 1 | | | | |
| SINP, Kolkata | 12 | 1 | | | | |
| VECC, Kolkata | 3 | 1 | | | | |
| C. Facility tests | | | | | | |
| | 70 | | | | | |
| Total | 488 | 12 | 72 | 3 | | |

6.1.3 List of Users

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

(A) UNIVERSITIES - (111)

| | | |
|-----|--|-----------------|
| 1. | Acharya Nagarjuna University | Andhra Pradesh |
| 2. | Alagappa University | Karaikudi |
| 3. | Aligarh Muslim University | Aligarh |
| 4. | Amity University | Noida |
| 5. | Andhra University | Waltair |
| 6. | Anna University | Chennai |
| 7. | Assam University | Silchar |
| 8. | Babasaheb Bhimrao Ambedkar University | Lucknow |
| 9. | Banaras Hindu University | Varanasi |
| 10. | Bangalore University | Bangalore |
| 11. | Berhampur University | Berhampur |
| 12. | Bharathiar University | Coimbatore |
| 13. | Bharathidasan University | Tiruchirappalli |
| 14. | Bhavnagar University | Bhavnagar |
| 15. | Calicut University | Calicut |
| 16. | Central University of Haryana | Mahendragarh |
| 17. | Central University of Jharkhand | Ranchi |
| 18. | Central University of Kerala | Kerala |
| 19. | Central University of Rajasthan | Rajasthan |
| 20. | Chaudhary Charan Singh University | Meerut |
| 21. | Cochin University of Science & Technology | Cochin |
| 22. | Delhi Technological University | Delhi |
| 23. | Devi Ahilya University | Indore |
| 24. | Dr. Babasaheb Ambedkar Marathwada University | Aurangabad |
| 25. | Dr. B.R. Ambedkar Univ. (Agra University) | Agra |
| 26. | Gauhati University | Guwahati |

| | | |
|-----|--|-------------------------|
| 27. | Gautam Buddha University | Greater Noida |
| 28. | Goa University | Goa |
| 29. | Govind Ballabh Pant University of Agriculture and Technology | Pantnagar |
| 30. | Gujarat University | Ahmedabad |
| 31. | Gulbarga University | Gulbarga |
| 32. | Guru Ghasidas Vishwavidyalaya | Bilaspur |
| 33. | Guru Gobind Singh Indraprastha University | New Delhi |
| 34. | Guru Jambheshwar University of Science & Technology | Hisar |
| 35. | Guru Nanak Dev University | Amritsar |
| 36. | Hemwati Nandan Bahuguna Garhwal University | Srinagar, Garhwal |
| 37. | Himachal Pradesh University | Simla |
| 38. | Indira Gandhi National Open University | New Delhi |
| 39. | Jamia Millia Islamia University | New Delhi |
| 40. | Jawaharlal Nehru University | Delhi |
| 41. | Jai Prakash Vishwavidyalaya | Chapra |
| 42. | K.R. Mangalam University | Gurgaon |
| 43. | Karnataka University | Dharwad |
| 44. | Kolhan University | Chaibasa |
| 45. | Kiel University | Germany |
| 46. | Kurukshetra University | Kurukshetra |
| 47. | Kuvempu University | Shankaraghatta, Shimoga |
| 48. | Ludwig-Maximilians-Universität München | Germany |
| 49. | Madurai Kamaraj University | Madurai |
| 50. | Maharshi Dayanand University | Rohtak |
| 51. | Maharishi Markandeshwar University | Ambala |
| 52. | Mahatma Gandhi University | Kottayam |
| 53. | Mahatma Jyotiba Phule Rohilkhand University | Bareilly |
| 54. | Manav Rachna International University | Faridabad |
| 55. | Mangalore University | Mangalore |
| 56. | Manipur University | Imphal |
| 57. | Manonmaniam Sundaranar University | Tirunelveli |

| | | |
|-----|--|--------------------|
| 58. | Mohanlal Sukhadia University | Udaipur |
| 59. | Rashtrasant Tukadoji Maharaj Nagpur University | Nagpur |
| 60. | North Carolina State University | USA |
| 61. | North Eastern Hill University | Shillong |
| 62. | North Maharashtra University | Jalgaon |
| 63. | North Orissa University | Baripada |
| 64. | Osaka University | Japan |
| 65. | Osmania University | Hyderabad |
| 66. | Panjab University | Chandigarh |
| 67. | Patna University | Patna |
| 68. | Periyar University | Chennai |
| 69. | Pondicherry University | Pondicherry |
| 70. | Punjab Agricultural University | Ludhiana |
| 71. | Punjabi University | Patiala |
| 72. | P.E.S. Institute of Technology | Bangalore |
| 73. | Rani Durgavati Vishwavidyalaya | Jabalpur |
| 74. | Sabanci University | Turkey |
| 75. | Saint Petersburg Polytechnic University | Russia |
| 76. | Saurashtra University | Rajkot |
| 77. | Savitribai Phule Pune University | Pune |
| 78. | Sharda University | Noida |
| 79. | Shiv Nadar University | Uttar Pradash |
| 80. | Shivaji University | Kolhapur |
| 81. | Shri Mata Vaishno Devi University | Katra |
| 82. | Sri Krishnadevaraya University | Anantapur |
| 83. | Technische Universität Darmstadt | Darmstadt, Germany |
| 84. | Tezpur University | Tezpur |
| 85. | The Maharaja Sayajirao University of Baroda | Vadodara |
| 86. | The University of Burdwan | Burdwan |
| 87. | The University of Sheffield | Sheffield |
| 88. | Tilka Manjhi Bhagalpur University | Bhagalpur |

| | | |
|------|---|-----------------|
| 89. | Tumkur University | Tumkur |
| 90. | University and Petroleum & Energy Studies | Dehradun |
| 91. | University of Allahabad | Allahabad |
| 92. | University of Calcutta | Kolkata |
| 93. | University of Delhi | Delhi |
| 94. | University of Hyderabad | Hyderabad |
| 95. | University of Jammu | Jammu |
| 96. | University of Kalyani | Kalyani |
| 97. | University of Kashmir | Srinagar |
| 98. | University at Lucknow | Lucknow |
| 99. | University of Madras | Chennai |
| 100. | University of Maryland | Maryland, USA |
| 101. | University of Mumbai | Mumbai |
| 102. | University of Mysore | Mysore |
| 103. | University of Notre Dame | Notre Dame, USA |
| 104. | University of Padova | Italy |
| 105. | University of Pune | Pune |
| 106. | University of Rajasthan | Jaipur |
| 107. | University of Stuttgart | Germany |
| 108. | Utkal University | Bhubaneswar |
| 109. | Vikram University | Ujjain |
| 110. | Vishwa Bharti University | Bolpur |
| 111. | West Bengal University of Technology | Kolkata |

(B) COLLEGES - (63)

| | | |
|----|--|-----------|
| 1. | Anand International College of Engineering | Rajasthan |
| 2. | Ananda Mohan College | Kolkata |
| 3. | Armed Forces Medical College | Pune |
| 4. | Bareilly College | Bareilly |
| 5. | Beant College of Engineering & Technology | Gurdaspur |
| 6. | Bharatiya Jain Sanghatana College | Pune |

| | | |
|-----|---|-----------------------|
| 7. | Bhiwandi College | Mumbai |
| 8. | B.N.N. College | Bhiwandi |
| 9. | College of Engineering and Technology | Aligarh |
| 10. | Doodhsakhar Mahavidyalaya | Bidri, Maharashtra |
| 11. | D.A.V. College | Jalandhar |
| 12. | D.A.V. College | Kanpur |
| 13. | D.A.V. College | Mumbai |
| 14. | D.B.S. College | Dehradun |
| 15. | Ewing Christian College | Allahabad |
| 16. | Govt. Art College | Rajahmundry, AP |
| 17. | Govt. College | Ajmer |
| 18. | Govt. College | Kota |
| 19. | Govt. College | Mahendragarh, Haryana |
| 20. | Govt. M.S.J. College | Bharatpur |
| 21. | Goalpara College | Goalpara, Assam |
| 22. | Gurudas College | Kolkata |
| 23. | Guru Nanak Girls College | Ludhiana (PNJ) |
| 24. | G.F.(PG) College | Shahjahanpur |
| 25. | Iswar Chandra Vidyasagar College (formerly Belonia College) | Belonia, Tripura |
| 26. | Jai Hind College | Mumbai |
| 27. | Kalindi College | New Delhi |
| 28. | Kandi Raj College | Murshidabad, (WB) |
| 29. | Kishinchand Chellaram College | Mumbai |
| 30. | Kongunadu Arts & Science College | Coimbatore |
| 31. | Koshi College | Khagaria, Bihar |
| 32. | Krishnath College | West Bengal |
| 33. | K.J. Somaiya College of Science & Commerce | Mumbai |
| 34. | KIIT University | Bhubaneswar |
| 35. | Lalbaba College | Kolkata |
| 36. | Mahila Degree College | Lucknow |
| 37. | Marwari College | Ranchi |

| | | |
|-----|---|-------------------------|
| 38. | M.M.H. College | Ghaziabad |
| 39. | M.R. College | Vizianagaram (AP) |
| 40. | Nayagarh College | Nayagarh |
| 41. | Nizam College | Hyderabad |
| 42. | N.S.A.M. College | Mangalore |
| 43. | Orissa Univ. of Agriculture & Tech. | Bhubaneswar |
| 44. | Poorna Prajna College | Udupi, Karnataka |
| 45. | Punjab Engineering College | Chandigarh |
| 46. | R.B.S. College | Agra |
| 47. | R.D.&D.J. College | Munger, Bihar |
| 48. | R.P.G. College | Ratnagiri |
| 49. | School of Physical Sciences | JNU, New Delhi |
| 50. | School of Physical Sciences | Nanded, Maharashtra |
| 51. | School of Tech. & Applied Sciences | Kottayam, Kerala |
| 52. | Sharanabasaveshwar College of Science | Gulbarga |
| 53. | Smt. Chandibai Himathmal Mansukhani College | Ulhasnagar, Maharashtra |
| 54. | Sri Bhuvanendra College | Karkala |
| 55. | St. Edmunds College | Shillong |
| 56. | St. Xavier's College | Kolkata |
| 57. | Swami Shraddhanand College | New Delhi |
| 58. | SDM College | Ujire, Mysore |
| 59. | S.N. College | Kollam |
| 60. | S.V. College | Aligarh |
| 61. | University College | Kurukshetra |
| 62. | University College of Science & Tech. | Kolkata |
| 63. | Vaish College | Rohtak |

(C) OTHER INSTITUTIONS – (95)

| | | |
|----|---|-----------|
| 1. | All India Institute of Medical Sciences | Delhi |
| 2. | Amity School of Engineering | New Delhi |

| | | |
|-----|---|-------------|
| 3. | Amity Institute of Nanotechnology | Noida |
| 4. | Amrita Vishwa Vidyapeetham | Bangaluru |
| 5. | Amrita School of Engineering | Bangalore |
| 6. | AFM/XPS Laboratory | Bhubaneswar |
| 7. | AICTE | New Delhi |
| 8. | AIIMS | New Delhi |
| 9. | Bangabasi Morning College | Kolkata |
| 10. | Bhabha Atomic Research Centre | Mumbai |
| 11. | Bose Institute | Kolkata |
| 12. | Centre for Superconductivity research | USA |
| 13. | C.E.E.R.I. | Pilani |
| 14. | CAT | Indore |
| 15. | CCMB | Hyderabad |
| 16. | CSNSM, Orsay Cedex | France |
| 17. | Dayalbagh Educational Institute | Agra |
| 18. | Defence Laboratory | Jodhpur |
| 19. | Defence Research & Development Organ. | Dehradun |
| 20. | Dr. B.R. Ambedkar National Institutes of Technology | Jalandhar |
| 21. | D.M.R.L. | Hyderabad |
| 22. | Flerov Laboratory of Nuclear Reactions | Russia |
| 23. | Genetic Institute of Manufacturing Technology | Singapore |
| 24. | GSI | Germany |
| 25. | Harcourt Butler Technological Institute | Kanpur |
| 26. | Homi Bhabha National Institute | Kolkata |
| 27. | ICGEB | New Delhi |
| 28. | IISER | Kolkata |
| 29. | I.G.C.A.R. | Kalpakkam |
| 30. | Indian Institute of Information Technology | Allahabad |
| 31. | Indian Institute of Science | Bangalore |
| 32. | Indian Institute of Technology-BHU | Varanasi |
| 33. | Indian Institute of Technology | Chennai |

| | | |
|-----|--|---------------|
| 34. | Indian Institute of Technology | Kanpur |
| 35. | Indian Institute of Technology | Kharagpur |
| 36. | Indian Institute of Technology Bombay | Mumbai |
| 37. | Indian Institute of Technology Delhi | New Delhi |
| 38. | Indian Institute of Technology | Rajasthan |
| 39. | Indian Institute of Technology | Roorkee |
| 40. | Indian School of Mines | Dhanbad |
| 41. | Indian Space Research Organisation | Bangalore |
| 42. | Institute for Plasma Research | Gandhinagar |
| 43. | Institute of Basic Sciences | Agra |
| 44. | Institute of Energy and Climate Research | Germany |
| 45. | Institute of Materials Science | Bhubaneswar |
| 46. | Institute of Physics | Bhubaneswar |
| 47. | Institute of Science | Mumbai |
| 48. | International Centre for Genetic Engineering and Biotechnology | New Delhi |
| 49. | INFN-LEGNARO | Italy |
| 50. | INMAS | New Delhi |
| 51. | IUC-DAEF, Calcutta Centre | Kolkata |
| 52. | IUC-DAEF, Indore Centre | Indore |
| 53. | Jaypee Institute of Information Technology | Noida |
| 54. | Joint Inst. of Nuclear Research | Dubna, Russia |
| 55. | Malaviya National Institute of Technology | Jaipur |
| 56. | Massachusetts Inst. of Technology | USA |
| 57. | Maulana Azad National Institute of Technology | Bhopal |
| 58. | Ministry of Defence (R & D Orgn) | Delhi |
| 59. | Motilal Nehru National Institute of Technology | Allahabad |
| 60. | Nanocrystals Technology | USA |
| 61. | National Academy of Science | Allahabad |
| 62. | National Institute for Material Sciences | Japan |
| 63. | National Institute of Material Sciences | Japan |
| 64. | National Institute of Oceanography | Goa |

| | | |
|-----|--|------------------|
| 65. | National Institute of Science Education and Research | Bhubaneswar |
| 66. | National Institute of Technology, Hamirpur | Himachal Pradesh |
| 67. | National Institute of Technology | Jalandhar |
| 68. | National Institute of Technology | Kurukshetra |
| 69. | National Institute of Technology | Rourkela |
| 70. | National Institute of Technology | Silchar |
| 71. | National Institute of Technology | Srinagar |
| 72. | National Institute of Technology | Tiruchirapalli |
| 73. | National Physical Laboratory | New Delhi |
| 74. | NCAOR | Goa |
| 75. | NCCCM/BARC | Hyderabad |
| 76. | NISER | Bhubaneswar |
| 77. | NCSR | France |
| 78. | Oak Ridge National Laboratory | USA |
| 79. | Physical Research Laboratory | Ahmedabad |
| 80. | Research Centre Imarat (RCI), DRDO | Hyderabad |
| 81. | Saha Institute of Nuclear Physics | Kolkata |
| 82. | Sant Longowal Institute of Engineering & Technology | Sangrur (Punjab) |
| 83. | Solid State Physics Laboratory, DRDO | Delhi |
| 84. | SSPL | New Delhi |
| 85. | SUNAG Laboratory | Odisha |
| 86. | Tata Institute of Fundamental Research | Mumbai |
| 87. | Thapar Institute of Engineering & Technology (Thapar University) | Patiala |
| 88. | UGC-DAE-CSR | Indore |
| 89. | UGC-DAE-CSR | Kolkata |
| 90. | UM-DAC Centre for Excellence in Basic Sciences | Mumbai |
| 91. | Variable Energy Cyclotron Centre | Kolkata |
| 92. | Vidya Prasarak Mandal's Polytechnic | Maharashtra |
| 93. | Visva-Bharati | Santiniketan |
| 94. | V.P.M's Polytechnic | Maharashtra |
| 95. | Wadia Institute of Himalayan Geology | Dehradun |

6.2 STUDENT PROGRAMMES

6.2.1 Summer Project for B.Sc. (Physics) Students

P.Sugathan, A.M.Mandal and P.N.Prakash

This year's summer project programme for B.Sc students held at IUAC started from 01 June to 29th June, 2015. Total 16 students participated in the programme. Students were provided free accommodation, travel support and local hospitality by IUAC. The program objective is to give students an exposure to some of the experimental works in accelerator based physics research and provide hands on experience in some of research/development activities at IUAC. During the stay here each student joined one of the research groups at IUAC and worked on a small laboratory project under supervision of scientist/engineer. Accelerator & laboratory tour was organized to provide the students opportunity to see various facilities at IUAC. Introductory level lectures were delivered by IUAC scientist covering various topics in accelerator based research at IUAC. Concluding day each student made a short presentation outlining their project work and received the participation certificate from IUAC.



Summer Students, 2015

LIST OF PROJECTS FOR B.Sc. (PHYSICS) STUDENTS

| S.No. | Name & Affiliation of Students | IUAC Supervisor | Project Title |
|-------|--|---------------------|---|
| 1. | Ms. Nidhi Bisht Maitreyi College, New Delhi | Mr. V.V. Siva Kumar | Growth of nano structured films by thermal evaporation/sputtering. |
| 2. | Ms. Vanisha Govt. College, Hisar (Haryana) | Dr. P.K. Kulriya | Synthesis and characterization of nano-composite thin films using RF sputtering setup |
| 3. | Ms. Navara Narthana Aditya Degree College, Visakhapatnam | Dr. Pragya Bhatt | Time of flight mass spectrometry |
| 4. | Ms. Madhavi Pachauri Central University of Rajasthan, Kishangarh (Rajasthan) | Dr. Indra Sulania | Imaging of nano-structures in nano-dimensions |

| S.No. | Name & Affiliation of Students | Supervisor | Project Title |
|-------|---|----------------------|--|
| 5. | Mr. Diwakar Hindu College, Delhi | Dr. Ajith Kumar B.P. | Study of LCR systems using Expeyes hardware and Python programming |
| 6. | Mr. Arnab Barman Ray Indian Institute of Technology, Kharagpur | Mr. Sarvesh Kumar | Magnetic field profiling in a Quadrupole magnet |
| 7. | Mr. Ankit Kumar Kumawat Centre for Excellence in Basic Sciences, Mumbai | Mr. Saneesh | Characterization of Fast Neutron detector |
| 8. | Ms. Avleen Kaur Sahni St. Stephens College, Delhi | Mr. A. Jhingan | Characterisation of multi-wire proportional chamber and hybrid telescope |
| 9. | Mr. S. Narendran Yadava College, Madurai | Dr. Rakesh Kumar | Characteristic study of HPGe detector and CLOVER detector |
| 10. | Mr. Avnish Singh National P.G. College, Lucknow | Dr. K. Asokan | Synthesis of Fe ₂ O ₃ nano particles and their electrical characterization. |
| 11. | Mr. Shankar Dutt Guru Nanak Dev University, Amritsar | Mr. D. Sen | Thermo - luminescence characteristics of nano-crystalline material |
| 12. | Mr. Nitish Swami Acharya Narendra Dev College, New Delhi | Ms. Devarani Devi | Source of Negative ion by Cesium sputtering |
| 13. | Mr. Salil Batabyal Acharya Narendra Dev College, New Delhi | Mr. Rajveer Sharma | Optimization of ion beam currents for Accelerator Mass Spectrometry. |
| 14. | Ms. Meenakshi Tejra Govt. Holkar Science College, Indore | Mr. Kedar Mal | Study of Charge state distribution of low energy ion beam by ECR Ion source |
| 15. | Mr. Nishant Shukla Central University of Jharkhand | Dr. D. Kabiraj | Comparison of thin film thickness measurement by step height and energy loss method |
| 16. | Mr. Jithin Babu.P.T Sree Kerala Varma College, Thrissur | Dr. G.O. Rodrigues | Installation & testing of 18 GHz high temperature superconducting ECR ion source and low energy beam transport section of the High current Injector. |

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 this M. Sc. Orientation programme is three weeks. It is open throughout the year. Student can apply for this programme based on their convenient time. Applications can be submitted online only. This flexibility allows the students to choose the project period without hampering their main study course. Following students participated in this programme.

| S.No. | Name | Affiliation |
|-------|--------------------|---|
| 1 | Ms. Monika Kataria | Indian School of mines, Dhanbad |
| 2 | Mr. P. Deviprasath | Pondicherry University |
| 3 | Ms. Manju | Central University of Haryana |
| 4 | Ms. Banti | Central University of Haryana |
| 5 | MohdAkram | JamiaMilliaIslamia University |
| 6 | Ms. Jubna I J | Cochin University of Science & Technology |
| 7 | Mr. Vijith K P | Cochin University of Science & Technology |
| 8 | Mr. Ashish Anil | Cochin University of Science & Technology |
| 9 | Mr. Mandeep Singh | University of Rajasthan |
| 10 | Mr. Athrey C D | University of Mysore |
| 11 | Ms. Khushi Bhatt | Maharaja Sayajirao University, Baroda |

Details of this programme can be accessed at:<http://www.iuac.res.in/sc/msc/index.html>

Online Application Portal: <http://www.iuac.res.in/indico/event/mscop>

6.2.3 PhD Teaching Programme

A.M. Mandal, P.N.Prakash and P. Sugathan

The two semester Ph.D teaching programme for research students of IUAC, research students from other universities in India and for new trainee scientists of IUAC, continued to run well during this year. Overwhelming response from different universities indicates the benefits of the programme to the community of students starting fresh research at various universities throughout the country. The programme consist of two semesters—the first semester, held during August-December, offers courses in instrumentation, data acquisition etc. apart from advanced courses in materials science and nuclear

physics, while the second semester, held during January-May, offers courses in Experimental Physics and Accelerator Physics. Each course module consists of 8-10 lectures of one & half hour duration and 1 credit point is awarded. This year two new courses were added in the second semester - advanced classical mechanics and advanced statistical mechanics.

About a month before the semester commences, a poster containing details of the course modules is uploaded on the IUAC website. The printed version of the poster is also sent to the physics departments of various universities and colleges for inviting applications. Accommodation and TA/DA is provided to the selected participants.

6.2.4 Teaching Lab. Activities

Ajith Kumar B P. & V V V Satyanarayana

As a part of IUAC's outreach program, we develop computer interfaced laboratory equipment and train teachers in modern experimental data acquisition and analysis methods. A general purpose computer interface named ExpEYES was released in 2012 and around 2000 units are currently in circulation. During 2015-16, two training programs of one week duration were conducted at IUAC. We also conducted training programs at several other colleges and universities, with the participation of several hundred students and teachers. RD University at Jabalpur, MLAC College and IISc at Bangalore, St. Teresa's College at Kochi and Himachal Pradesh Central University were some of them.

ICFOSS, an organization under government of Kerala, has taken some initiative to introduce ExpEYES to school teachers. They are currently running a program to train 500 teachers and distribute ExpEYES kits to them. New experiments suitable for school level have been developed and documented in the regional language.

6.3 LIBRARY ACTIVITIES

Priyambada Nayak

Salient features

| | |
|-----------------------------------|---|
| Working hours: | Round the clock, all days of the week |
| Total Books: | ~2885 (broadly covering the subjects Nuclear Physics, Materials Science, Nanotechnology, Electronics, Computer Science, Radiobiology, 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) |
| Reprints/Photocopies: | ~700 |
| Newsletters, House magazines etc. | 50 |

Databooks, Manuals etc.: ~550

Ph.D. Thesis: 164

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 “KOHA” has been installed for the computerization of library documents. Apart from the online current journals, Journal archives are also being subscribed by the library. “**Turn-it-in**”, the originality check software is 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 UGC-INFONET 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 2015-16

- 27 April-2 May, 2015 **Workshop on Innovative Experiments**
(Contact Persons: Ajith Kumar B.P / V.V.V. Satyanarayana)
- 1 May, 2015 **Acquaintance Programme at Dr. Babasaheb Ambedkar Marathwada University, Aurangabad**
(Contact Person: Fouran Singh)
- 1 June, 2015 **Summer Programme for B.Sc.(Physics) Students**
(Contact Person: P. Sugathan)
- 5-7 July, 2015 **Users’ Workshop**
- 8 July, 2015 **58th AUC Meeting**
- 10 August, 2015 **Ph.D Programme: Fall Semester starts**
(Contact Persons: A. Mandal / P.N. Prakash)
- 19-21 August, 2015 **IUAC Academic Workshop**
(Contact Person: P. Sugathan)

- 7-11 September, 2015 **School on Nuclear Reactions**
(Contact Persons: N. Madhavan / P. Sugathan)
- 14-15 September, 2015 **Workshop on Recent Trends in Nuclear Physics**
(Contact Persons: S. Muralithar / N. Madhavan)
- 21-26 September, 2015 **Workshop on Innovative Experiments**
(Contact Persons: Ajith Kumar B.P. / V.V.V. Satyanarayana)
- 9 October, 2015 **Acquaintance Programme at Acharya Nagarjuna University, Guntur**
(Contact Person: C.P. Safvan)
- 25-26 October, 2015 **Pre-conference International School - Simulations: Ion beam Effects in Materials** (Contact Person: Sumit Mookherjee)
- 27-31 October, 2015 **18th International conference on “Radiation Effects in Insulators”, to be held in Jaipur** (Contact Person: D.K. Avasthi)
- 3-4 November, 2015 **Workshop on Low Energy Ion Beam Facility of IUAC**
(Contact Person: S. Chopra)
- 16 November, 2015 **Acquaintance Programme at Gauhati University, Guwahati**
(Contact Person: N. Madhavan)
- 22-25 November, 2015 **International Conference on “Nanostructuring by Ion Beams”, at Agra**
(Contact Person: A. Tripathi)
- 16-18 December, 2015 **Users’ Workshop**
- 19 December, 2015 **Foundation Day & 59th AUC Meeting**
- 11 January, 2016 **PhD Programme : Spring Semester Starts**
(Contact Persons: A. Mandal / P.N. Prakash)
- 18-19 February, 2016 **IUAC Academic Workshop**
(Contact Person: P. Sugathan)

- 28 February, 2016 **National Science Day**
(Contact Person: Indra Sulania)
- 7-11 March, 2016 **26th International Cryogenic Engineering Conference-ICEC 26 &
International Cryogenic Materials Conference 2016 - ICMC 2016**
(Contact Person: T.S. Datta)

6.5 FORTHCOMING EVENTS: 2016

- 4 April, 2016 **Acquaintance Programme at Central University of Punjab, Bhatinda**
(Contact Person : Pankaj Kumar)
- 21-23 April, 2016 **Workshop on Accelerator Mass Spectrometry**
(Contact Person : S. Chopra)
- 25-29 April, 2016 **School on Experimental methods in Gamma Ray Spectroscopy**
(Contact Persons : S. Muralithar / R.P. Singh)
- 2-7 May, 2016 **Training Program on Computer Interfaced Science Experiments**
(Contact Persons: Ajith Kumar B.P./V.V.V. Satyanarayana)
- 16-28 May, 2016 **School on Accelerator Physics**
(Contact Person : R. Mehta)
- 1-28 June, 2016 **Summer Programme for B. Sc. (Physics) Students**
(Contact Person: Subir Nath)
- 6-7 July, 2016 **Users Workshop**
- 8 July, 2016 **60th AUC Meeting**
- 8 August, 2016 **PhD Programme : Fall Semester starts**
(Contact Persons: P. N. Prakash / P. Sugathan)

| | |
|-----------------------|---|
| 22-24 August, 2016 | IUAC Academic Workshop (Contact Person: P. Sugathan) |
| 19 September, 2016 | One-day Workshop on Isomer studies at the Focal Plane of HYRA (Contact Persons: Akhil Jhingan / Subir Nath) |
| 22-27 September, 2016 | International School on Ion Beams in Materials Science (Contact Person: A. Tripathi) |
| Sept. 28-Oct. 1, 2016 | International Conference on Ion Beams in Materials Engineering and Characterizations (IBMEC) (Contact Person: A. Tripathi) |
| 3-8 October, 2016 | Training Program on Computer Interfaced Science Experiments (Contact Persons: Ajith Kumar B.P./V.V.V. Satyanarayana) |
| 7 November, 2016 | Acquaintance Programme at University of Kerala, Thiruvananthapuram (Contact Person: S. Chopra) |
| 17-18 November, 2016 | Workshop on High Performance Computing (Contact Person: Sumit Mookherjee) |
| 16-18 December, 2016 | Users Workshop |
| 19 December, 2016 | Foundation Day Programme & 61st AUC Meeting |

6.6 LIST OF PH.D AWARDEES

The following persons have been awarded Ph.D degree from Jawaharlal Nehru University during 2015-16:

- **Narender Kumar:** Design and Development of 2.45 GHz microwave Ion Source based High Flux System and its Applications.
- **Soumen Kar:** Electro-Thermal Characterization of Cryogen-Free Superconducting (LTS) magnet system.
- **Compesh Pannu:** Swift heavy ion induced effects in immiscible systems at nanoscale.
- **Pankaj Kumar:** Studies of cosmogenic Radionuclides using Accelerator Mass Spectrometry.
- **Sonu Devi:** Ion beam induced damage evolution in Germanium.
- **Sunil Kumar:** Ion beam induced studies in Graphene.

6.7 LIST OF PUBLICATIONS IN THE YEAR 2015-16

A. NUCLEAR PHYSICS

1. **Interplay of fission modes in mass distribution of light actinide nuclei $^{225,227}\text{Pa}$** , R. Dubey, P. Sugathan, A. Jhingan, Gurpreet Kaur, Ish Mukul, G. Mohanto, D. Siwal, N. Saneesh, T. Banerjee, Meenu Thakur, Ruchi Mahajan, N. Kumar, M.B. Chatterjee, *Phys. Lett. B* **752**, 338 (2016).
2. **Fission fragment mass distribution studies in $^{30}\text{Si}+^{180}\text{Hf}$ reaction**, A. Shamlath, M. Shareef, E. Prasad, P. Sugathan, R.G. Thomas, A. Jhingan, S. Appannababu, A.K. Nasirov, A.M. Vinodkumar, K.M. Varier, C. adav, B.R.S. Babu, S. Nath, G. Mohanto, Ish Mukul, D. Singh, S. Kailas, *Nucl. Phys. A* **945**, 67 (2016).
3. **Incomplete fusion in $^{16}\text{O}+^{159}\text{Tb}$** , Vijay R. Sharma, Pushpendra P. Singh, M. Shuaib, A. Yadav, I. Bala, Manoj K. Sharma, S. Gupta, D. P. Singh, R. Kumar, S. Muralithar, R. P. Singh, B. P. Singh, R. Prasad, R. K. Bhowmik, *Nucl. Phys. A* **946**, 182 (2016).
4. **A new high-spin isomer in ^{195}Bi** , T. Roy, G. Mukherjee, N. Madhavan, T. K. Rana, Soumik Bhattacharya, Md. A. Asgar, I. Bala, K. Basu, S. S. Bhattacharjee, C. Bhattacharya, S. Bhattacharya, S. Bhattacharyya, J. Gehlot, S. S. Ghugre, R. K. Gurjar, A. Jhingan, R. Kumar, S. Muralithar, S. Nath, H. Pai, R. Palit, R. Raut, R. P. Singh, A. K. Sinha, and T. Varughese, *Eur. Phys. J. A* **51**, 153 (2015).
5. **Influence of vibrational excitation on surface diffuseness of the internuclear potential: Study through heavy-ion quasielastic scattering at deep sub-barrier energies**, Gurpreet Kaur, B. R. Behera, A. Jhingan, P. Sugathan, and K. Hagino, *Phys. Rev. C* **92**, 044609 (2015).
6. **Probing fusion-fission dynamics in ^{203}Bi** , Ish Mukul, S. Nath, K. S. Golda, A. Jhingan, J. Gehlot, E. Prasad, Sunil Kalkal, M. B. Naik, Tathagata Banerjee, T. Varughese, P. Sugathan, N. Madhavan, and Santanu Pal, *Phys. Rev. C* **92**, 054606 (2015).
7. **Negative-parity high-spin states and a possible magnetic rotation band in $^{135}_{59}\text{Pr}_{76}$** , R. Garg, S. Kumar, M. Saxena, S. Goyal, D. Siwal, S. Kalkal, S. Verma, R. Singh, S. C. Pancholi, R. Palit, D. Choudhury, S. S. Ghugre, G. Mukherjee, R. Kumar, R. P. Singh, S. Muralithar, R. K. Bhowmik, S. Mandal, *Phys. Rev. C* **92**, 054325 (2015).
8. **Evidence for octupole correlation and chiral symmetry breaking in ^{124}Cs** , K. Selvakumar, A. K. Singh, C. Ghosh, P. Singh, A. Goswami, R. Raut, A. Mukherjee, U. Datta, P. Datta, S. Roy, G. Gangopadhyay, S. Bhowal, S. Muralithar, R. Kumar, R. P. Singh, M. K. Raju, *Phys. Rev. C* **92**, 064307 (2015).
9. **High spin spectroscopy and shape coexistence in ^{73}As** , M. K. Raju, P. V. Madhusudhana Rao, S. K. Tandel, P. Sugathan, R. P. Singh, S. Muralithar, T. Seshi Reddy, B. V. Thirumala Rao, J. Meng, S. Zhang, J. Li, Q. B. Chen, B. Qi, R. K. Bhowmik, *Phys. Rev. C* **92**, 064324 (2015).
10. **Fusion probability in heavy nuclei**, Tathagata Banerjee, S. Nath and Santanu Pal, *Phys. Rev. C* **91**, 034619 (2015); Erratum: Fusion probability in heavy nuclei [*Phys. Rev. C* **91**, 034619(2015)], Tathagata Banerjee, S. Nath, and Santanu Pal, *Phys. Rev. C* **91**, 069901 (2015).

11. **Probing nuclear dissipation via evaporation residue functions for the $^{16,18}\text{O}+^{198}\text{Pt}$ reactions**, Rohit Sandal, B. R. Behera, Varinderjit Singh, Maninder Kaur, A. Kumar, Gurpreet Kaur, P. Sharma, N. Madhavan, S. Nath, J. Gehlot, A. Jhingan, K. S. Golda, Hardev Singh, S. Mandal, S. Verma, E. Prasad, K. M. Varier, A. M. Vinodkumar, A. Saxena, Jhilmam Sadhukhan, and Santanu Pal, *Phys. Rev. C* **91**, 044621 (2015).
12. **Experimental study of cross sections in the $^{12}\text{C}+^{27}\text{Al}$ system at $\approx 3\text{-}7$ MeV/nucleon relevant to the incomplete fusion process**, M. K. Sharma, A. Yadav, V. R. Sharma, D. P. Singh, P. P. Singh, Unnati, I. Bala, R. Kumar, B. P. Singh and R. Prasad, *Phys. Rev. C* **91**, 024608 (2015).
13. **Systematic study of pre-equilibrium emission at low energies in ^{12}C and ^{16}O -induced reactions**, M. K. Sharma, P. P. Singh, D. P. Singh, A. Yadav, V. R. Sharma, I. Bala, R. Kumar, Unnati, B. P. Singh and R. Prasad, *Phys. Rev. C* **91**, 014603 (2015).
14. **High spin spectroscopy and shape evolution in ^{105}Cd** , M. K. Raju, D. Negi, S. Muralithar, R. P. Singh, J. A. Sheikh, G. H. Bhat, R. Kumar, I. Bala, T. Trivedi, A. Dhal, K. Rani, R. Gurjar, D. Singh, R. Palit, B. S. Naidu, S. Saha, J. Sethi, R. Donthi and S. Jadhav, *Phys. Rev. C* **91**, 024319 (2015).
15. **Spectroscopy and shell model calculations in Si isotopes**, S. S. Bhattacharjee, R. Bhattacharjee, R. Raut, S. S. Ghugre, A. K. Sinha, L. Chaturvedi, T. Trivedi, U. Garg, S. Ray, B. K. Yogi, M. K. Raju, R. Chakrabarti, S. Mukhopadhyay, A. Dhal, R. P. Singh, N. Madhavan, S. Muralithar, S. Saha, J. Sethi, R. Palit, *Phys. Rev. C* **91**, 044306 (2015).
16. **Role of neutrons in the coexistence of magnetic and antimagnetic rotation bands in ^{107}Cd** , D. Choudhury, R. Palit, P. Singh, J. Sethi, S. Saha, S. Biswas, H. C. Jain, V. Nanal, R. G. Pillay, R. Donthi, S. K. Jadhav, B. S. Naidu, B. Maheshwari, A. K. Jain, S. C. Pancholi, R. P. Singh, S. Mukhopadhyay, D. C. Biswas, L. S. Danu, S. K. Tandel, L. Chaturvedi, K. R. Devi and S. Singh, *Phys. Rev. C* **91**, 014318 (2015).
17. **$T_z = -1 \rightarrow 0$ β decays of ^{54}Ni , ^{50}Fe , ^{46}Cr , and ^{42}Ti and comparison with mirror ($^3\text{He}, t$) measurements**, F. Molina, B. Rubio, Y. Fujita, W. Gelletly, J. Agramunt, A. Algora, J. Benlliure, P. Boutachkov, L. Caceres, R. B. Cakirli, E. Casarejos, C. Domingo-Pardo, P. Doornenbal, A. Gadea, E. Ganioglu, M. Gascon, H. Geissel, J. Gerl, M. Gorska, J. Grebosz, R. Hoischen, R. Kumar, N. Kurz, I. Kojouharov, L. Amon Susam, H. Matsubara, A. I. Morales, Y. Oktem, D. Pauwels, D. Perez-Loureiro, S. Pietri, Zs. Podolyak, W. Prokopowicz, D. Rudolph, H. Schaffner, S. J. Steer, J. L. Tain, A. Tamii, S. Tashenov, J. J. Valiente-Dobon, S. Verma and H. -J. Wollersheim, *Phys. Rev. C* **91**, 014301 (2015).
18. **Fusion measurements for the $^{18}\text{O}+^{194}\text{Pt}$ reaction and search for neutron shell closure effects**, P. V. Laveen, E. Prasad, N. Madhavan, S. Pal, J. Sadhukhan, S. Nath, J. Gehlot, A. Jhingan, K. M. Varier, R. G. Thomas, A. M. Vinodkumar, A. Shamlath, T. Varughese, P. Sugathan, B. R. S. Babu, S. Appannababu, K. S. Golda, B. R. Behera, Varinderjit Singh, Rohit Sandal, A. Saxena, B. V. John, S. Kailas, *J. Phys. G: Nucl. Part. Phys.* **42**, 095105 (2015).
19. **Low energy incomplete fusion and the role of input angular momenta**, R. Kumar, V. R. Sharma, A. Yadav, P. P. Singh, S. Appannababu, A. Aggarwal, B. P. Singh, S. Mukherjee, S. Muralithar, R. Ali and R. K. Bhowmik, *Acta. Phys. Pol. B* **46**, 453 (2015).

20. **Recent results of measurements of evaporation residue excitation functions for $^{19}\text{F}+^{194,196,198}\text{Pt}$ and $^{16,18}\text{O}+^{198}\text{Pt}$ systems with HYRA spectrometer at IUAC**, B.R. Behera, EPJ Web Conf. **86**, 00003 (2015).
21. **Spin distribution as a probe to investigate the dynamical effects in fusion reactions**, Maninder Kaur, B. R. Behera, Gulzar Singh, Varinderjit Singh, N. Madhavan, S. Muralithar, S. Nath, J. Gehlot, G. Mohanto, Ish Mukul, Davinder Siwal, Meenu Thakur, Kushal Kapoor, Priya Sharma, Akhil Jhingan, T. Varughese, Indu Bala, M. B. Chatterjee, B. K. Nayak and A. Saxena, EPJ Web Conf. **86**, 00026 (2015).
22. **Fission excitation function for $^{19}\text{F}+^{194,196,198}\text{Pt}$ at near and above barrier energies**, Varinderjit Singh, B. R. Behera, Maninder Kaur, A. Jhingan, P. Sugathan, Santanu Pal, Davinder Siwal, M. Oswal, K. P. Singh, S. Goyal, A. Saxena and S. Kailas, EPJ Web Conf. **86**, 00052 (2015).
23. **The study of $^{12}\text{C}(\alpha,\gamma)$ astrophysical reaction using $^{12}\text{C}(^6\text{Li},d)$ and $^{12}\text{C}(^7\text{Li},t)$ reaction at 20 MeV and in the framework of the potential model**, S. Adhikari, C. Basu, P. Sugathan, A. Jhingan, B. R. Behera, N. Saneesh, G. Kaur, M. Thakur, R. Mahajan, R. Dubey and A. K. Mitra, EPJ Web Conf. **86**, 00001 (2015).
24. **Effect of shell structure on neutron multiplicity of fissioning systems $^{220,222,224}\text{Th}$ nuclei**, Savi Goyal, S. Mandal, Akhil Jhingan, P. Sugathan, Santanu Pal, B. R. Behera, K. S. Golda, Hardev Singh, Sunil Kalkal, Varinderjit Singh, Ritika Garg, Davinder Siwal, Maninder Kaur, Mansi Saxena, Suresh Kumar, S. Verma, M. Gupta, Subinit Roy and R. Singh, EPJ Web Conf. **86**, 00013 (2015).
25. **Study of nuclear structure effect on fusion through barrier distribution for the system $^{28}\text{Si}+^{154}\text{Sm}$** , Gurpreet Kaur, B. R. Behera, A. Jhingan, P. Sugathan and N. Rowley, EPJ Web Conf. **86**, 00018 (2015).
26. **Statistical model calculations for evaporation residue and fission cross-section for $^{48}\text{Ti}+^{122}\text{Sn}$ system**, Priya Sharma, B. R. Behera, Santanu Pal and N. Madhavan, EPJ Web Conf. **86**, 00045 (2015).
27. **Statistical model calculations of pre-scission neutron multiplicity for the heavy ion induced fusion-fission reactions with actinide target ^{232}Th** , Meenu Thakur, B. R. Behera, Maninder Kaur, Santanu Pal, P. Sugathan and Akhil Jhingan, EPJ Web Conf. **86**, 00060 (2015).
28. **Spin gated GDR widths at moderate temperatures**, Ish Mukul, P. Sugathan, J. Gehlot, G. Mohanto, A. K. Rhine Kumar, I. Mazumdar, Maninder Kaur, N. Madhavan, S. Nath, R. Dubey, T. Banerjee, N. Saneesh, D. A. Gothe, P. Arumugam, A. Roy, EPJ Web of Conferences, Volume **86**, 00029 (2015).
29. **First experimental tests of the kinematic separator SHELS (Separator for Heavy Element Spectroscopy)**, A. Yeremin, O. Malyshev, A. Popeko, V. Chepigin, A. Svirikhin, A. Lopez-Martens, K. Hauschild, O. Dorvaux, B. Gall and J. Gehlot, EPJ Web Conf. **86**, 00065 (2015).
30. **Front-end electronics for CsI based charged particle array for the study of reaction dynamics**, Akhil Jhingan, P. Sugathan, Gurpreet Kaur, K. Kapoor, N. Saneesh, T. Banerjee, Hardev Singh, A. Kumar, B. R. Behera, B. K. Nayak, Nucl. Instrum. Meth. A **786**, 51 (2015).

31. **Fabrication of enriched $^{174}\text{Yb}_2\text{O}_3$ thin targets on carbon and tantalum backings**, Aman Rohilla, C. K. Gupta, Tapan Rajbongshi, R. P. Singh, Sunil Ojha, Heena Duggal, D. Mehta, S. K. Chamoli, Nucl. Instrum. Meth. A **797**, 230 (2015).
32. **Detector instrumentation for nuclear fission studies**, A. Jhingan, Pramana – J. Phys. **85**, 483 (2015).

B. MATERIALS SCIENCE

1. **Anomalous behavior of B_{1g} mode in highly transparent anatase nano-crystalline Nb-doped Titanium Dioxide (NTO) thin films**, S. K. Gautam, N. Gautam, R. Singh, S. Ojha, D. Shukla, and F. Singh, AIP Advances **5**, 127212 (2015).
2. **Antibacterial properties of Au doped polycarbonate synthesized by gamma radiation assisted diffusion method**, K. Hareesh, A.V. Deore, S. Dahiwal, G. Sanjeev, D. Kanjilal, S. Ojha, N. Dhole, K. Kodam, V. Bhoraskar, and S. Dhole, Radiation Physics and Chemistry **112**, 97 (2015).
3. **Carbon Ion Irradiation Damage Effects on Electrical Characteristics of Silicon PNP Power BJTs**, K. Krishnakumar, C. Dinesh, K. Madhu, R. Damle, M. Radhakrishna, S. A. Khan, and D. Kanjilal, IEEE Transactions on Device and Materials Reliability **15**, 101 (2015).
4. **Characterization of Neutron Transmutation Doped (NTD) Ge for low temperature sensor development**, S. Mathimalar, V. Singh, N. Dokania, V. Nanal, R. Pillay, S. Pal, and S. Ramakrishnan, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **345**, 33 (2015).
5. **A comparative investigation of γ -ray and C^{5+} ion beam impact on thermoluminescence response of $\text{Mg}_2\text{BO}_3\text{F}$: Dy phosphor**, B. P. Kore, N. Dhoble, R. Kadam, S. Lochab, and S. Dhoble, Materials Chemistry and Physics **161**, 96 (2015).
6. **Consequences of electronic excitations in $\text{CoFe}_{1.90}\text{Dy}_{0.10}\text{O}_4$** , H. Kumar, J. P. Singh, R. Srivastava, P. Negi, H. Agrawal, K. Asokan, S. O. Won, and K. H. Chae, Current Applied Physics **15**, 1650 (2015).
7. **Crystallite size induced crossover from paramagnetism to superparamagnetism in zinc ferrite nanoparticles**, J. P. Singh, S. Gautam, R. Srivastava, K. Asokan, D. Kanjilal, and K. H. Chae, Superlattices and Microstructures **86**, 390 (2015).
8. **Defect controlled ferromagnetism in xenon ion irradiated zinc oxide**, P. Satyarthi, S. Ghosh, P. Mishra, B. Sekhar, F. Singh, P. Kumar, D. Kanjilal, R. Dhaka, and P. Srivastava, Journal of Magnetism and Magnetic Materials **385**, 318 (2015).
9. **Defect driven ferromagnetism in SnO_2 : a combined study using density functional theory and positron annihilation spectroscopy**, A. Sarkar, D. Sanyal, P. Nath, M. Chakrabarti, S. Pal, S. Chattopadhyay, D. Jana, and K. Asokan, RSC Advances **5**, 1148 (2015).

10. **Defect induced enhancement of exchange bias by swift heavy ion irradiation in zinc ferrite–FeNiMoB alloy based bilayer films**, R. Lisha, T. Hysen, P. Geetha, P. Aravind, M. Shareef, A. Shamlath, S. Ojha, R. Ramanujan, and M. Anantharaman, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **360**, 68 (2015).
11. **Diffuse phase ferroelectric vs. Polomska transition in (1-x) BiFeO₃-(x) BaZr_{0.025}Ti_{0.975}O₃ (0.1 ≤ x ≤ 0.3) solid solutions**, P. K. Jha, P. A. Jha, V. Singh, P. Kumar, K. Asokan, and R. K. Dwivedi, *Journal of Applied Physics* **117**, 024102 (2015).
12. **Dynamic scaling of swift heavy ion induced surface restructuring of BaF₂ thin film**, R. K. Pandey, M. Kumar, T. Kumar, A. C. Yadav, U. B. Singh, S. A. Khan, A. Tripathi, D. Avasthi, and A. C. Pandey, *Materials Letters* **143**, 309 (2015).
13. **Effect of 50MeV Li³⁺ ion irradiation on structural, optical and electrical properties of amorphous Se₉₅Zn₅ thin films**, S. Ahmad, R. Sethi, M. Nasir, K. Asokan, M. Zulfequar, M. Sinha, and S. Verma, in *AIP Conference Proceedings* (AIP Publishing, 2015), p. 030027.
14. **Effect of ⁶⁰Co γ-irradiation on structural and optical properties of thin films of Ga₁₀Se₈₀Hg₁₀**, S. Ahmad, K. Asokan, M. Shahid Khan, and M. Zulfequar, *Philosophical Magazine* **95**, 2385 (2015).
15. **Effect of defects and film thickness on the optical properties of ZnO–Au hybrid films**, K. Saravanan, R. Krishnan, S. Hsieh, H. Wang, Y. Wang, W. Pong, K. Asokan, D. Avasthi, and D. Kanjilal, *RSC Advances* **5**, 40813 (2015).
16. **Effect of Gamma Irradiation on Structural and optical properties of Thin Films of a-Cd₅Se₉₅-xZnx**, S. Ahmad, K. Asokan, and M. Zulfequar, *Int. J. Thin. Fil. Sci. Tec* **4**, 103 (2015).
17. **Effect of gamma irradiation on the structural and optical properties of thin films of a-CdSe**, S. Ahmad, M. S. Khan, K. Asokan, and M. Zulfequar, *Optik-International Journal for Light and Electron Optics* **126**, 3501 (2015).
18. **Effect of gamma ray irradiation on sodium borate single crystals**, M. Kalidasan, K. Asokan, K. Baskar, and R. Dhanasekaran, *Radiation Physics and Chemistry* **117**, 70 (2015).
19. **Effect of laser irradiation on structural and optical properties of thermally evaporated thin films of amorphous Cd₅Se₉₅-xZnx**, S. Ahmad, M. Ganaie, M. S. Khan, K. Asokan, and M. Zulfequar, *Radiation Effects and Defects in Solids* **170**, 30 (2015).
20. **Effect of Mn doping on structural, morphological and dielectric properties of EuFeO₃ ceramics**, K. Sultan, M. Ikram, and K. Asokan, *RSC Advances* **5**, 93867 (2015).
21. **Effect of swift heavy ion (SHI) irradiation on the structural and optical properties of N implanted CVT grown ZnSe single crystals**, P. Kannappan, K. Baskar, J. Krishna, K. Asokan, C. Dong, C. Chen, Y. Lu, and R. Dhanasekaran, *Materials Science in Semiconductor Processing* **36**, 140 (2015).
22. **Effect of swift heavy ion (SHI) irradiation on transparent conducting oxide electrodes for dye-sensitized solar cell applications**, H. K. Singh, D. Avasthi, and S. Aggarwal, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **353**, 35 (2015).

23. **Effect of swift heavy ion irradiation on structural and opto-electrical properties of bi-layer CdS–Bi₂S₃ thin films prepared by solution growth technique at room temperature**, S. U. Shaikh, F. Y. Siddiqui, D. J. Desale, A. V. Ghule, F. Singh, P. K. Kulriya, and R. Sharma, *Radiation Physics and Chemistry* **106**, 193 (2015).
24. **Effect of swift heavy ion on structural and optical properties of highly transparent zinc oxide films**, S. Negi, M. Rana, F. Singh, and R. Ramola, *Journal of Sol-Gel Science and Technology* **76**, 608 (2015).
25. **Effects of O⁷⁺ and Ni⁹⁺ swift heavy ions irradiation on polyacrylamide grafted Gum acacia thin film and sorption of methylene blue**, B. Kaith, R. Sharma, K. Sharma, S. Choudhary, V. Kumar, and S. Lochab, *Vacuum* **111**, 73 (2015).
26. **Effects of passage of 200 MeV Ag⁹⁺ ions in indium phosphide at different depths**, M. Kirkire, S. Dubey, V. Jadhav, A. Yadav, F. Singh, and D. Kanjilal, *Radiation Effects and Defects in Solids* **170**, 690 (2015).
27. **Effects of swift heavy ion irradiation on structural, optical and photocatalytic properties of ZnO–CuO nanocomposites prepared by carbothermal evaporation method**, S. Kuriakose, D. Avasthi, and S. Mohapatra, *Beilstein journal of nanotechnology* **6**, 928 (2015).
28. **Electrical and magnetic properties of the pulsed laser deposited Ca doped LaMnO₃ thin films on Si (100) and their electronic structures**, K. Sultan, M. Ikram, S. Gautam, H.-K. Lee, K. H. Chae, and K. Asokan, *RSC Advances* **5**, 69075 (2015).
29. **Electronic excitation induced structural, optical and electrical properties of Se₈₅S₁₀Zn₅ thin films and applicability of a single oscillator model**, S. Ahmad, M. Nasir, K. Asokan, M. S. Khan, and M. Zulfeqar, *RSC Advances* **5**, 69400 (2015).
30. **Embedded Ge nanocrystals in SiO₂ synthesized by ion implantation**, V. Baranwal, J. Gerlach, A. Lotnyk, B. Rauschenbach, H. Karl, S. Ojha, D. Avasthi, D. Kanjilal, and A. C. Pandey, *Journal of Applied Physics* **118**, 134303 (2015).
31. **Energy-separated sequential irradiation for ripple pattern tailoring on silicon surfaces**, T. Kumar, M. Kumar, V. Panchal, P. Sahoo, and D. Kanjilal, *Applied Surface Science* **357**, 184 (2015).
32. **Enhanced Hydrogenation Properties of Size Selected Pd–C Core–Shell Nanoparticles; Effect of Carbon Shell Thickness**, V. Singh, B. R. Mehta, S. K. Sengar, P. K. Kulriya, S. A. Khan, and S. M. Shivaprasad, *The Journal of Physical Chemistry C* **119**, 14455 (2015).
33. **Enhancement of thermoelectric power of PbTe: Ag nanocomposite thin films**, M. Bala, S. Gupta, T. S. Tripathi, S. Varma, S. K. Tripathi, K. Asokan, and D. K. Avasthi, *RSC Advances* **5**, 25887 (2015).
34. **Exchange bias and anisotropy analysis of nano-composite Co₈₄Zr₁₆N thin films**, J. Singh, W. R. Taube, A. S. Ansari, S. K. Gupta, P. K. Kulriya, and J. Akhtar, *Journal of Magnetism and Magnetic Materials* **378**, 164 (2015).

35. **Ferromagnetism in Ni doped ZnS thin films: Effects of Ni concentration and swift heavy ion irradiation**, S. P. Patel, J. Pivin, R. Chandra, D. Kanjilal, and L. Kumar, *Vacuum* **111**, 150 (2015).
36. **Gamma ray induced thermoluminescence properties of Eu³⁺ doped SnO₂ phosphor**, M. Chowdhury, S. Sharma, and S. Lochab, *Materials Research Bulletin* **70**, 584 (2015).
37. **Giant enhancement of the n-type conductivity in single phase p-type ZnO: N thin films by intentionally created defect clusters and pairs**, S. K. Gautam, R. Singh, V. S. Kumar, and F. Singh, *Solid State Communications* **218**, 20 (2015).
38. **Graphene scavenges free radicals to synergistically enhance structural properties in a gamma-irradiated polyethylene composite through enhanced interfacial interactions**, E. Kolanthai, S. Bose, K. Bhagyashree, S. Bhat, K. Asokan, D. Kanjilal, and K. Chatterjee, *Physical Chemistry Chemical Physics* **17**, 22900 (2015).
39. **Growth and Magnetic Properties of RF Sputtered Fe-Ga Thin Films**, L. R. Nivedita, V. V. S. Kumar, K. Asokan, and R. T. Rajendrakumar, *Materials Research* **18**, 946 (2015).
40. **Growth and various characterizations of LiHSO₄ single crystals**, F. A. Najar, G. B. Vakil, F. A. Wani, F. A. Mir, and K. Asokan, *Journal of Materials Science: Materials in Electronics* **26**, 1455 (2015).
41. **Growth of highly transparent Cd_xZn_{1-x}O (CZO) thin films: Structural and optical studies**, N. Gautam, F. Singh, S. K. Gautam, R. Singh, S. Ojha, and A. Kapoor, *Journal of Alloys and Compounds* **650**, 311 (2015).
42. **Impact of 100 MeV Ag⁷⁺ SHI irradiation fluence and N incorporation on structural, optical, electrical and gas sensing properties of ZnO thin films**, L. Balakrishnan, S. G. Raj, S. Meher, K. Asokan, and Z. Alex, *Applied Physics A* **119**, 1541 (2015).
43. **Impact of sintering temperature on structural, optical and ferroelectric properties of V-doped ZnO**, P. Kumar, R. Joshi, A. Gaur, L. Kumar, and K. Asokan, *Materials Research Express* **2**, 045901 (2015).
44. **The influence of Ag⁹⁺ ion irradiation on the structural, optical and luminescence properties of Sm³⁺ doped NaSrBO₃: Stability of color emission**, A. Bedyal, V. Kumar, V. K. Singh, F. Singh, S. Lochab, O. Ntwaeaborwa, and H. Swart, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **351**, 27 (2015).
45. **Influence of substrate temperature on properties of nc ZnO–SiO_x thin films grown by rf co-sputter deposition**, V. S. Kumar and D. Kanjilal, *Journal of Alloys and Compounds* **639**, 511 (2015).
46. **In-situ high temperature irradiation setup for temperature dependent structural studies of materials under swift heavy ion irradiation**, P. Kulriya, R. Kumari, R. Kumar, V. Grover, R. Shukla, A. Tyagi, and D. Avasthi, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **342**, 98 (2015).

47. **Investigating spin reversal and other anomalies in magnetic, transport and specific heat measurements of NdFeO₃ and NdFe_{0.5}Ni_{0.5}O₃ ortho-perovskites**, S. A. Mir, M. Ikram, and K. Asokan, RSC Advances **5**, 85082 (2015).
48. **Investigation of structural and optical properties of 100 MeV F⁷⁺ ion irradiated Ga₁₀Se_{90-x}Al_x thin films**, S. Ahmad, K. Asokan, and M. Zulfeqar, Philosophical Magazine **95**, 1309 (2015).
49. **Investigation on the dielectric response of NdMnO₃/LSAT thin films: Effect of 200MeV Ag⁺¹⁵ ion irradiation**, M. Udeshi, B. Vyas, P. Trivedi, S. Katba, A. Ravalia, P. Solanki, N. Shah, K. Asokan, S. Ojha, and D. Kuberkar, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **365**, 560 (2015).
50. **Investigations of ripple pattern formation on Germanium surfaces using 100-keV Ar⁺ ions**, I. Sulania, D. Agarwal, M. Husain, and D. K. Avasthi, Nanoscale research letters **10**, 88 (2015).
51. **Ion-irradiation-induced relaxation of tensile strain and change in directionality of magnetic domains in BaFeO_{3-δ} thin films**, F. Aziz, M. Chandra, S. Das, M. Prajapat, K. Asokan, and K. Mavani, EPL (Europhysics Letters) **110**, 47011 (2015).
52. **Luminescence characteristics of C⁵⁺ ions and ⁶⁰Co irradiated Li₂BaP₂O₇: Dy³⁺ phosphor**, J. Wani, N. Dhoble, S. Lochab, and S. Dhoble, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **349**, 56 (2015).
53. **Luminescence properties of 100 MeV swift Si⁷⁺ ions irradiated nanocrystalline zirconium oxide**, H. Loksha, K. Nagabhushana, and F. Singh, Journal of Alloys and Compounds **647**, 921 (2015).
54. **Luminescence properties of CaF₂ nanostructure activated by different elements**, N. Salah, N. D. Alharbi, S. S. Habib, and S. Lochab, Journal of Nanomaterials **16**, 5 (2015).
55. **Luminescence study of Dy or Ce activated LiCaBO₃ phosphor for γ-ray and C⁵⁺ ion beam irradiation**, A. H. Oza, N. Dhoble, S. Lochab, and S. Dhoble, Luminescence **30**, 967 (2015).
56. **Luminescence study of γ-ray and C⁵⁺ ion beam-irradiated LiCaBO₃: Cu phosphor**, A. H. Oza, N. Dhoble, S. Lochab, and S. Dhoble, Radiation Effects and Defects in Solids **170**, 659 (2015).
57. **Modification of magnetic anisotropy induced by swift heavy ion irradiation in cobalt ferrite thin films**, R. Nongjai, S. Khan, H. Ahmed, I. Khan, S. Annapoorni, S. Gautam, H.-J. Lin, F.-H. Chang, K.H. Chae, and K. Asokan, Journal of Magnetism and Magnetic Materials **394**, 432 (2015).
58. **Modification of the microstructure and electronic properties of rutile TiO₂ thin films with 79MeV Br ion irradiation**, H. Rath, P. Dash, U. Singh, D. Avasthi, D. Kanjilal, and N. Mishra, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms **365**, 553 (2015).
59. **Modifications in device characteristics of La_{0.6}Pr_{0.2}Sr_{0.2}MnO₃/SrNb_{0.002}Ti_{0.998}O₃ manganites by swift heavy ion irradiation**, A. Ravalia, M. Vagadia, P. Trivedi, P. Solanki, P. Vachhani, R. Choudhary, D. Phase, K. Asokan, N. Shah, and D. Kuberkar, Indian Journal of Physics **89**, 137 (2015).

60. **Modifications in the electronic structure of Rare-Earth doped BiFeO₃ multiferroic**, P. Trivedi, S. Katba, S. Jethva, M. Udeshi, B. Vyas, M. Vagadia, S. Gautam, K. Chae, K. Asokan, and D. Kuberkar, *Solid State Communications* **222**, 5 (2015).
61. **Onset of size independent cationic exchange in nano-sized CoFe₂O₄ induced by electronic excitation**, H. Kumar, J. P. Singh, R. C. Srivastava, P. Negi, H. Agrawal, K. Asokan, S. O. Won, and K. H. Chae, *Journal of Alloys and Compounds* **645**, 274 (2015).
62. **Phase evolution and electrical properties of Co–Sb alloys fabricated from Co/Sb bilayers by thermal annealing and ion beam mixing**, M. Bala, S. Gupta, T. S. Tripathi, S. K. Tripathi, K. Asokan, and D. K. Avasthi, *Physical Chemistry Chemical Physics* **17**, 24427 (2015).
63. **Physical and biological properties of the ion beam irradiated PMMA-based composite films**, G. Shanthini, C. A. Martin, N. Sakthivel, S. C. Veerla, K. Elayaraja, B. Lakshmi, K. Asokan, D. Kanjilal, and S. N. Kalkura, *Applied Surface Science* **329**, 116 (2015).
64. **A poly (vinylidene fluoride-co-hexafluoro propylene) nanohybrid membrane using swift heavy ion irradiation for fuel cell applications**, K. K. Jana, A. K. Thakur, V. K. Shahi, D. K. Avasthi, D. Rana, and P. Maiti, *Journal of Materials Chemistry A* **3**, 10413 (2015).
65. **Positron annihilation lifetime measurement and X-ray analysis on 120 MeV Au⁺⁷ irradiated polycrystalline tungsten**, C. L. Dube, P. K. Kulriya, D. Dutta, P. K. Pujari, Y. Patil, M. Mehta, P. Patel, and S. S. Khirwadkar, *Journal of Nuclear Materials* **467**, 406 (2015).
66. **Preparation and characterizations of cadmium sulfide nanoparticles**, F. A. Mir, I. Chattarjee, A. A. Dar, K. Asokan, and G. Bhat, *Optik-International Journal for Light and Electron Optics* **126**, 1240 (2015).
67. **Probing defect driven tunable spontaneous magnetization in paramagnetic Zn_{0.95}Co_{0.05}O epitaxial films by X-ray absorption investigations**, P. Satyarthi, S. Ghosh, Y. Wang, S. Zhou, P. Kumar, D. Kanjilal, L. Olivi, D. Bürger, I. Skorupa, and H. Schmidt, *Journal of Alloys and Compounds* **649**, 891 (2015).
68. **Prototype electrochromic device and dye sensitized solar cell using spray deposited undoped and 'Li'doped V₂O₅ thin film electrodes**, M. Kovendhan, D.P. Joseph, P. Manimuthu, A. Sendilkumar, S. Karthick, S. Sambasivam, K. Vijayarangamuthu, H.J. Kim, B.C. Choi, and K. Asokan, *Current Applied Physics* **15**, 622 (2015).
69. **Reduction of graphene oxide by 100 MeV Au ion irradiation and its application as H₂O₂ sensor**, K. Hareesh, R. Joshi, B. Shateesh, K. Asokan, D. Kanjilal, D. Late, S. Dahiwal, V. Bhoraskar, S. Haram, and S. Dhole, *Journal of Physics D: Applied Physics* **48**, 365105 (2015).
70. **Role of growth temperature on the structural, optical and electrical properties of ZnO thin films**, A. Kumar, P. Kumar, K. Kumar, T. Singh, R. Singh, K. Asokan, and D. Kanjilal, *Journal of Alloys and Compounds* **649**, 1205 (2015).

71. **Role of ion beam excitations on quasi one-dimensional magnetic system of Mn-doped LiCuVO₄**, A. Kumar, G. Dwivedi, S. Kumar, P. Shahi, K. Shukla, A. Ghosh, K. Asokan, D. Kanjilal, R. Singh, A. Nigam, *Materials Chemistry and Physics* **161**, 19 (2015).
72. **Role of strain and nanoscale defects in modifying the multiferroicity in nanostructured BiFeO₃ films**, A. Ravalia, M. Vagadia, P. Solanki, K. Asokan, and D. Kuberkar, *Journal of Experimental Nanoscience* **10**, 1057 (2015).
73. **Role of substrate effects on the morphological, structural, electrical and thermoelectrical properties of V₂O₅ thin films**, B. A. Bhat, G. Khan, and K. Asokan, *RSC Advances* **5**, 52602 (2015).
74. **Role of surface and subsurface defects in MgO thin film: XANES and magnetic investigations**, J. P. Singh, C. Chen, C. Dong, J. Prakash, D. Kabiraj, D. Kanjilal, W. Pong, and K. Asokan, *Superlattices and Microstructures* **77**, 313 (2015).
75. **Room temperature ferrimagnetism and low temperature disorder effects in zinc ferrite thin films**, L. Raghavan, G. Pookat, H. Thomas, S. Ojha, D. Avasthi, and M. Anantharaman, *Journal of Magnetism and Magnetic Materials* **385**, 265 (2015).
76. **Room temperature superparamagnetism in rutile TiO₂ quantum dots produced via ECR sputtering**, V. Solanki, I. Mishra, S. Joshi, P. Mishra, P. Dash, N. Mishra, D. Kanjilal, and S. Varma, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **365**, 82 (2015).
77. **Self-organized titanium oxide nano-channels for resistive memory application**, A. Barman, C. Saini, P. Sarkar, B. Satpati, S. Bhattacharyya, D. Kabiraj, D. Kanjilal, S. Dhar, and A. Kanjilal, *Journal of Applied Physics* **118**, 224903 (2015).
78. **Spontaneous formation of superconducting NiBi₃ phase in Ni-Bi bilayer films**, V. Siva, K. Senapati, B. Satpati, S. Prusty, D. Avasthi, D. Kanjilal, and P. K. Sahoo, *Journal of Applied Physics* **117**, 083902 (2015).
79. **Structural and electrochemical characterization of carbon ion beam irradiated reduced graphene oxide and its application in voltammetric determination of norepinephrine**, F. Singh and R. N. Goyal, *RSC Advances* **5**, 87504 (2015).
80. K. Abhirami, P. Matheswaran, B. Gokul, R. Sathyamoorthy, and K. Asokan, in *IOP Conference Series: Materials Science and Engineering* (IOP Publishing, 2015), p. 012113.
81. **Structural manipulation in Ge by swift heavy ions governed by electron-phonon coupling strength**, S. Hooda, B. Satpati, S. Ojha, T. Kumar, D. Kanjilal, and D. Kabiraj, *Materials Research Express* **2**, 045903 (2015).
82. **Structural, magnetic and electronic structure studies of PrFe_{1-x}MnxO₃ (x= 0, 0.1, 0.3, 0.5) thin films grown on Si (100)**, K. Sultan, M. Ikram, S. Gautam, H.-K. Lee, K. H. Chae, and K. Asokan, *Journal of Alloys and Compounds* **628**, 151 (2015).

83. **Structural, transport and ferroelectric properties of $Zn_{1-x}Mg_xO$ samples and their local electronic structure**, P. Kumar, J. P. Singh, H. K. Malik, S. Gautam, K. Chae, and K. Asokan, *Superlattices and Microstructures* **78**, 183 (2015).
84. **Studies of dense electronic excitation-induced modification in crystalline Fe-doped SnO_2 thin films**, M. K. Jaiswal, R. Kumar, D. Kanjilal, C. Dong, C. Chen, K. Asokan, and S. Ojha, *Applied Surface Science* **332**, 726 (2015).
85. **Study of thermal annealing induced plasmonic bleaching in $Ag:TiO_2$ nanocomposite thin films**, M. Kumar, T. Kumar, and D. K. Avasthi, *Scripta Materialia* **105**, 46 (2015).
86. **Swift heavy ion induced capacitance and dielectric properties of Ni/n-GaAs Schottky diode**, A. Bobby, N. Shiwakoti, P. Sarun, S. Verma, K. Asokan, and B. Antony, *Current Applied Physics* **15**, 1500 (2015).
87. **Swift heavy ion induced crystallographic tilt and site-disorder in epitaxial magneto-electric $GaFeO_3$ thin films**, V. R. Reddy, K. Sharma, A. Gupta, T. Ganguli, D. Avasthi, P. K. Kulriya, A. Banerjee, and V. Ganesan, *Journal of Physics D: Applied Physics* **48**, 375001 (2015).
88. **Swift Heavy Ion Induced Optical and Electronic Modifications of Graphene– TiO_2 Nanocomposites**, M. Mishra, F. Meinerzhagen, M. Schleberger, D. Kanjilal, and T. Mohanty, *The Journal of Physical Chemistry C* **119**, 21270 (2015).
89. **Swift heavy ion irradiation induced microstructural modification and evolution of photoluminescence from Si rich $a-SiN_x:H$** , R. Bommali, S. Ghosh, G. V. Prakash, D. Kanjilal, P. Mondal, A. Srivastava, and P. Srivastava, *Materials Research Express* **2**, 046204 (2015).
90. **Synthesis and characterization of Au–Fe alloy nanoparticles embedded in a silica matrix by atom beam sputtering**, C. Pannu, M. Bala, S. Khan, S. Srivastava, D. Kabiraj, and D. Avasthi, *RSC Advances* **5**, 92080 (2015).
91. **Thermoluminescence of sol–gel derived $Y_2O_3: Nd^{3+}$ nanophosphor exposed to 100MeV Si^{8+} ions and gamma rays**, N. Shivaramu, B. Lakshminarasappa, K. Nagabhushana, and F. Singh, *Journal of Alloys and Compounds* **637**, 564 (2015).
92. **Thermoluminescence properties of $Al_2O_3: Tb$ nanoparticles irradiated by gamma rays and 85MeV C^{6+} ion beam**, N. Salah, N. D. Alharbi, S. S. Habib, and S. Lochab, *Journal of Luminescence* **167**, 59 (2015).
93. **TL response of Eu activated LiF nanocubes irradiated by 85MeV carbon ions**, N. Salah, N. D. Alharbi, S. S. Habib, and S. Lochab, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms* **358**, 201 (2015).
94. **Tuning of optical bandgap and magnetization of C-implanted ZnO thin films**, P. Kumar, H. K. Malik, and K. Asokan, *EPL (Europhysics Letters)* **110**, 67006 (2015).
95. **XAS and XMCD investigation of zinc ferrite nanoparticles irradiated with 100 MeV O beam**, J. P. Singh, S. Gautam, R. C. Srivastava, K. Asokan, and K. H. Chae, in *2015 IEEE Magnetics Conference (INTERMAG)2015*, pp. 1.

C. ATOMIC & MOLECULAR PHYSICS

1. **Low energy highly charged ion beam facility at Inter University Accelerator Centre: Measurement of the plasma potential and ion energy distributions**, T. Sairam, Pragya Bhatt, Ajit Kumar, Herendra Kumar and C. P. Safvan, *Physics of Plasmas* **22**, 113503 (2015).
2. **Can substitution accomplish intact polycationic stability in polyatomic molecules? Illustration with acetylene molecule**, T. Sairam, Ajit Kumar, C. P. Safvan, *Journal of Molecular Structure* **1099**, 348 (2015).
3. **Design of mechanically compensated Penning trap for the study of ions in extreme laser field**, Sugam Kumar, M. Vogel, W. Quint, S. Ringleb, Th. Stöhlker and C. P. Safvan, *Journal of Physics: Conference Series* **635**, (9) 092070 (2015).
4. **Molecular orbital perspective for inner shell couplings: Level diagrams**, Punita Verma, C. P. Safvan, A. Jhingan, T. Nandi, A. Mandal, *Journal of Physics: Conference Series* **635**, 022074 (2015).
5. **Monte Carlo simulation for ion-molecule collisions at intermediate velocity**, U. R. Kadhane, P. M. Mishra, J. Rajput, C. P. Safvan, and S. Vig, *Journal of Physics: Conference Series* **635**, 032075 (2015).
6. **Orientation and alignment effects in ion-induced fragmentation of isolated water molecules**, C. P. Safvan, Jyoti Rajput *Journal of Physics: Conference Series* **635**, 032041 (2015).
7. **Coupling of collective excitation in proton and photon interaction with PAHs**, P. M. Mishra, L. Avaldi, P. Bolognesi, K. C. Prince, J. Rajput, R. Richter, C. P. Safvan, S. Vig, and U. R. Kadhane *Journal of Physics: Conference Series* **635**, 112059 (2015).
8. **Do linear molecules always dissociate along their axis? Intra-molecular scattering within Diiodoacetylene**, Sankar De, H. Tezuka, P. Bhatt, G. Vesapidze, C. P. Safvan, J. Matsumoto and H. Shiromaru *Journal of Physics: Conference Series* **635**, 032061 (2015).
9. **Angular distributions of multiply charged fragments from dissociation of Nitrogen molecules by Xe⁹⁺ impact**, Ajit Kumar, T. Sairam, Jyoti Rajput, Lekha Nair and C. P. Safvan *Journal of Physics: Conference Series* **635**, 032103 (2015).
10. **Measurement of plasma potential using deceleration technique**, T. Sairam, Pragya Bhatt, Ajit Kumar, Herendra Kumar, J. Rajput, and C. P. Safvan, *Journal of Physics: Conference Series* **635**, 022047 (2015). **Ionization and electron capture in 240 keV Kr⁸⁺ collisions with CO₂**, Pragya Bhatt, T. Sairam, A. Kumar, H. Kumar and C. P. Safvan *Journal of Physics: Conference Series* **635**, 032058 (2015).

D. ACCELERATOR PHYSICS

1. **A new AMS facility at Inter-University Accelerator Centre**, New Delhi, Pankaj Kumar, J. K. Pattanaik, S. Ojha, S. Gargari, R. Joshi, S. Chopra and D. Kanjilal, Nucl. Instrum. Meth. B **361**, 115 (2015).
2. **Radiocarbon dating of charcoal samples from Rakhigarhi using AMS**, M. N. Vahia, Pankaj Kumar, Abhijeet Bhogale, D. C. Kothari, Sundeep Chopra, Vasant Shinde, Nilesh Jadhav and Ranvir Shastri, Current Science **111**, 27 (2015).
3. **Piezoelectric actuator based phase locking system to improve the dynamics of the control scheme for a heavy ion superconducting linac**, B. K.Sahu, R. Ahuja, R. Kumar, S. K. Suman, D. S. Mathuria, A. Rai, P. Patra, A. Pandey, J. Karmakar, G. K. Chowdhury, R. N. Dutt, G. Joshi, S. Ghosh, D. Kanjilal and A. Roy, Nucl. Instrum. Meth. A **777**, 123 (2015).

E. RADIATION BIOLOGY

1. **Carbon ion beam triggers both caspase-dependent and caspase-independent pathway of apoptosis in HeLa and status of PARP-1 controls intensity of apoptosis**. A. Ghorai, A. Sarma, N. P. Bhattacharyya, U. Ghosh, Apoptosis **20**, 562 (2015).
2. **ASPIRE: An automated sample positioning and irradiation system for radiation biology experiments at Inter University Accelerator Centre**, New Delhi, Ashok Kothari, P. Barua, M. Archunan, Kusum Rani, E.T. Subramanian, Geetanjali Pujari, Harminder Kaur, V.V.V. Satyanarayanan, Asitikantha Sarma, D. K. Avasthi, Radiation Measurements **76**, 17 (2015).

6.8 LIST OF SEMINARS CONDUCTED IN THE YEAR 2015-16

| S.No. | Date | Title | Name & Affiliation |
|--------------|-------------|--|--|
| 1. | 23/4/2015 | Helium re-condensation using Cryocoolers | Prof. Subhash Jacob Indian Institute of Science Bangalore |
| 2. | 02/5/2015 | UNDULATOR: Design, Fabrication and Optimization | Dr. Sumit Tripathi SOLEIL, France |
| 3. | 23/6/2015 | Can one plan to do Great Research? | Dr. Amit Roy DAE Raja ramanna Fellow & Former Director, IUAC |
| 4. | 13/7/2015 | Phases of nuclear matter | Tapan Kumar Nayak VECC, Kolkata |
| 5. | 11/8/2015 | Development of technique and measurement of fusion excitation function using radio-active ion beam | Dr. Varinderjit Singh Indiana University, USA |
| 6. | 02/11/2015 | Nanometric transformation of the matter by short and intense electronic excitation: a core-shell structure morphology of the track | Dr. Marcel Toulemonde CIMAP Laboratory, France |
| 7. | 02/11/2015 | Ion Beam Materials Analysis and Modifications at keV to MeV energies at the University of North Texas | Prof. Bibhudutta Rout University Of North Texas, USA |
| 8. | 03/11/2015 | Extrapolation of the inelastic thermal spike model developed for swift heavy ions to highly charged ions to describe surface modifications | Dr. Marcel Toulemonde CIMAP Laboratory, France |
| 9. | 10/11/2015 | In-beam gamma-ray spectroscopy at the RIBF | Dr Pieter Doornenbal RIKEN, Japan |
| 10. | 12 /11/2015 | Decay spectroscopy of the most exotic nuclei at the RIBF | Dr P-A Söderström RIKEN, Japan |
| 11. | 23/11/2015 | Studies of ion-surface interactions relevant to fusion research at BHU | Prof. R. Shanker Banaras Hindu University, Varanasi |
| 12. | 07/12/2015 | Present status of Delhi Light Source (DLS) at IUAC | Dr. Subhendu Ghosh IUAC, New Delhi |
| 13. | 14 /12/2015 | Recent Top Physics results from the CMS@LHC | Dr. Prolay K. Mal NISER, Bhubaneswar |

| S.No. | Date | Title | Name & Affiliation |
|-------|-----------|---|--|
| 14. | 12/1/2016 | Clustering vs. Pairing in 14N and 18O | Prof. Arun Kumar Jain BARC, Mumbai |
| 15. | 21/1/2016 | Musings on Developing Physics e-content for PG Students | Prof. P.K. Ahluwalia Himachal Pradesh University, Shimla |
| 16. | 27/1/2016 | Laser System for Delhi Light Source (DLS) & Work Experience at Brookhaven National Laboratory (BNL) | Mr. Bappa Karmakar IUAC, New Delhi |
| 17. | 16/2/2016 | Electromagnetic radiation from the tiniest rotor 8Be | Prof. V.M. Datar TIFR, Mumbai |
| 18. | 22/2/2016 | Free Electron Laser Activity at RRCAT | Dr. K.K. Pant RRCAT, Indore |
| 19. | 10/3/2016 | Quantum Physics with Ultra-Cold Atoms: from Bose-Einstein Condensation to Quantum Simulation | Prof. Dr. Gerhard Birkl Technische Universität Darmstadt |

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

School on “Nuclear reactions” at IUAC

N. Madhavan and P. Sugathan

A school on “Nuclear Reactions” was held at IUAC from 7th to 11th September, 2015. The programme consisted of a total of 20 hours of lectures on various topics on theoretical and experimental methods in nuclear reactions and 10 hours of practical training including lab sessions/visits, tutorials, simulations, analysis, etc. Nearly 40 participants consisting of research scholars and young faculty members from various universities/institutes interested in nuclear reactions and 15 faculty and resource personnel consisting of Nuclear Physics group members and RAs/senior research scholars/ex-Ph.D. students of IUAC and a faculty from Delhi University took part in the school. The participants and the faculty found the exercise useful and it was suggested that we could have such a Nuclear reaction school on alternate years at IUAC while the other set of alternate years may be dedicated for nuclear spectroscopy.



School on Nuclear reactions

Workshop on “Recent Trends in Nuclear Physics (RTNP) at IUAC

N. Madhavan and S. Muralithar

A two-day workshop on “Recent Trends in Nuclear Physics (RTNP)” was held during September 14-15, 2015 at IUAC. There were 24 lectures, delivered by several renowned researchers and some younger faculty from various universities and institutes, which covered all the contemporary facets of nuclear physics research possible with the facilities at IUAC. The talks consisted of either results of recent research work or introduction to specific sub-fields or new problems to be undertaken. There was a final open discussion session where the priorities were discussed. Nearly 80 participants attended the workshop. As the workshop followed the School on “Nuclear Reactions” where the ground-work had been established, a large number of participants of the school who also took part in the workshop were in a position to benefit a lot.

Two day workshop on Fission studies using NAND & GPSC facilities

P. Sugathan

Two days workshop on fusion-fission dynamics was organized at IUAC during 28-29 of March 2016. The workshop was oriented towards IUAC users who have used recently commissioned neutron detector array and general purpose scattering chamber (GPSC) facilities for fission related works. Total 53 registered participants attended the workshop. The workshop began with opening remarks by Director of IUAC which was followed by technical sessions. There were invited talks and presentations by researchers in both experimental and theoretical works in heavy ion induced fission and related reactions. The workshop provided the opportunity for group of nuclear reaction user community to come together and discuss the recent experiential results in heavy ion scattering and fission research carried out at IUAC facilities. Range of topics covering fission life time distribution, quasi fission competition, microscopic fission theory, shell effects in quasi fission, nuclear viscosity using charged particle probe, mass and angular distribution were discussed in the workshop. Topics on experimental facilities included presentation on status & experiments with NAND facility, detector system for fission studies, front end electronics and VME data acquisition etc. Students who performed experiments in NAND and GPSC facilities presented their results and participated in discussions. The workshop was concluded with a discussion on new directions and future experiments feasible with existing facilities. The workshop was supported by DST grant under NAND project.

Workshop on Future Directions in Ion Beams in Materials Engineering and Characterizations

A one day workshop on Future Directions in Ion Beams in Materials Engineering and Characterizations was organised at IUAC, New Delhi on Dec 30, 2016 in honour of Dr. D.K. Avasthi on his completion of 60 years. There were 16 invited talks and the opening remarks were given by Dr. D. Kanjilal, Director IUAC, New Delhi and Prof. G.K. Mehta.



Workshop on Future Directions in Ion Beams in Materials Engineering and Characterizations

International School on Simulation of Ion Beam Radiation Effects on Materials

S. Mookherjee

An International School on 'Simulation of Ion Beam Radiation Effects on Materials' was organised from 24th to 26th Oct 2015, in MNIT Jaipur before REI conference. The school was attended by 42 participants and inaugural lecture was given by Prof. W. J. Weber, from University of Tennessee, USA.



International School on Simulation of Ion Beam Radiation Effects on Materials

Eighteenth International Conference on Radiation Effects in Insulators (REI-18)

A. Tripathi

The Eighteenth International Conference on Radiation Effects in Insulators (REI-18) was held during October 26-31, 2015 in Jaipur, India. The conference was organized jointly by Inter-University Accelerator Centre, New Delhi, Malviya National Institute of Technology, Jaipur, Vivekanand Global University, Jaipur in cooperation with the International Atomic Energy Agency, IAEA, Vienna and was supported by the Ion Beam Society of India. The biennial conference is one of the most prominent conference series dedicated to research on radiation effects in insulators and non-metallic materials. There were 194 participants from 20 different countries. The scientific programme included 14 invited talks, 39 oral and 216 poster presentations. The inaugural address was given by Dr. D. Kanjilal, Director, IUAC, New Delhi and the plenary lecture was given by Prof. S. Klaumünzer, Germany. The conference proceedings having 51 papers are being published in a special issue of Nuclear Instruments and Methods B journal.



Eighteenth International Conference on Radiation Effects in Insulators (REI-18)



Eighteenth International Conference on Radiation Effects in Insulators (REI-18)

International Conference on Nanostructuring with ion beams (ICNIB)

A. Tripathi

The International Conference on Nanostructuring with Ion Beams (ICNIB), was organized in Agra from 23rd to 25th November 2015. The conference was jointly organized by Inter University Accelerator Centre (IUAC), New Delhi; BR Ambedkar University (BRAU), Agra; RBS College (RBSC) Agra and St John's College (SJC) Agra. The conference attended by 67 participants had 3 plenary, 13 invited, 13 oral talks and 33 poster presentations. The inaugural plenary talk was given by Prof. J. Fassbender, HZDR, Germany.



International Conference on Nanostructuring with ion beams

IUAC-One Day Acquaintance programme, held at Dr. Babasaheb Ambedkar Marathwara University, Aurangabad on 1st May, 2015

A one day Acquaintance programme of IUAC, New Delhi was organized at the Department of Physics, Br. Babasaheb Ambedkar Marathwara University, Aurangabad on 1st May, 2015. Prof. Mahendra Shirsat from BAMU acted as the local convener of the program and organized the program successfully with the help of his active team including Prof. Ramphal Sharma. One hundred and fourteen (114) participants comprising of senior faculty members from BAMU and affiliated colleges and young research students

around Aurangabad participated in this programme. After formal inauguration six talks were delivered by Dr. Fouran Singh (IUAC), Prof. Mahendra Shirsat (BAMU), Dr. Subir Nath (IUAC), Mr. Sunil Ojha (IUAC), Prof. S. I. Patil (SPU, Pune) and Prof. R.P. Sharma (BAMU). During the talks emphasis was given on all the facilities available at IUAC, New Delhi and scope for the research activities in various branches of Physics, Chemistry and Biology. A panel discussion and feedback from all the participants was also organized.



IUAC Acquaintance programme at Dr. Babasaheb Ambedkar Marathwara Univ. Aurangabad

Acquaintance Programme Organized by Inter-University Accelerator Centre (IUAC), New Delhi in collaboration with Department of Physics, Acharya Nagarjuna University, Nagarjunanagar on 9th Oct. 2015

A one day acquaintance programme on Applications of Accelerators based research was held on 9th October 2015 at department of Physics, Acharya Nagarjuna University. The program started at 10 AM with registration. Prof Sreehari Sastry, programme coordinator has welcomed the participants and explained about research activities of the department. Prof. C Rambabu, Principal has urged students to utilise research facilities provided by IUAC. Dr.RVSSN Ravikumar, HOD has chaired the sessions. This programme is funded (Rs.35,000/-) by Inter University Accelerator Centre (IUAC), a Delhi based pioneer research institute. Two scientists Dr. C P Safvan and Dr Rakesh Kumar from IUAC are involved as resource persons in this workshop and presented a detailed view on Accelerators and research based on accelerators. They have explained in length the scope and various research possibilities on accelerators research facilities in India and abroad. Also mentioned that IUAC is a UGC funded institute and providing research facilities to all interested students across India at free of cost. Academic faculty, research scholars and students comprising nearly 50 from different universities in the state of Andhra Pradesh participated in this programme and nearly 20 Acharya Nagarjuna University students. Participants are well satisfied with the interactive session with scientists and expressed that these types of programmes are really boost up their scientific interest towards research. A good feedback was also received from the participants.

IUAC Acquaintance Programme at Gauhati University on November 16, 2015

A one-day IUAC Acquaintance Programme titled “Accelerator-based multi-disciplinary scientific research” was held at the Department of Physics, Gauhati University, Guwahati, Assam on November 16, 2015. About 130 participants from North-East India, including those from Gauhati University (Assam), Tezpur University (Assam), Cotton College (Assam), B. Borooah Cancer Institute (Assam) and St. Edmonds College, Shillong (Meghalaya), participated in the programme. The event was inaugurated by Prof. H. P. Sharma, Rector of Gauhati University, a lecture on the need of accelerators in multi-disciplinary basic research was delivered by Dr. D. Kanjilal, Director, IUAC, a lecture on the importance of medical accelerators was delivered by Prof. A. Kataki, Director, B. Borooah Cancer Institute (BBCI) and talks

on Nuclear Physics research at IUAC and opportunities for potential users of IUAC were delivered by Dr. N. Madhavan, Scientist-H, IUAC followed by an interactive session. Prof. Ashok Kumar (Tezpur University), Dr. D. Mohanta (Tezpur University) and Dr. Kushal Kalita (Gauhati University) delivered talks on their experience as users of IUAC facilities and on their research work. Poster presentations of 14 selected papers were displayed during the programme by scholars/researchers from the region and a book of abstracts was brought out during the occasion.



IUAC Acquaintance Programme at Gauhati University

IUAC Foundation Day Programme (2015)

IUAC celebrated its 26th foundation day on December 19, 2015. The foundation day lecture titled “Mega Science and Technology Programme” was delivered by Dr. Sekhar Basu, Chairman, AEC and Secretary, DAE, Govt. Of India. Prof. H. Devaraj, Vice-Chairman, UGC presided over the function, on behalf of Prof. Ved Prakash, Chairman, UGC. Dr. D. Kanjilal, Director, IUAC presented the year’s achievements and the plans ahead. Prof. Devaraj, while appreciating the achievements, asked the employees and Director of IUAC to keep striving to take the institute to further heights in the field of accelerator based experimental research and development. Dr. N. Madhavan, Scientist, IUAC, conducted the proceedings and delivered the vote of thanks.



IUAC Foundation Day Programme (2015)

This year, the excellence awards were given to Dr. Subir Nath, Scientist and Mr. S. R. Abhilash, Junior Engineer by Prof. Devaraj and Dr. Kanjilal. The awards consisted of shield, certificate and cash prize. Mementos were also given to staff members who have completed 25 years of service at the institute. The forenoon events were held in the Auditorium of neighbouring institute NIPGR with the kind cooperation of their Director, Dr. Akhilesh Kumar Tyagi and other staff members. The function was attended by several esteemed dignitaries and by nearly 60 Class XI science stream students and 15 teachers from nearby schools. The post-lunch session was devoted to an introductory talk followed by demonstration experiments and visit to IUAC facilities for the visiting school students, teachers and other interested persons.

National Science Day 2016

Organized by Dr. Indra Sulania, Scientist, IUAC

The national science day programme is celebrated in India each year to mark the discovery of the 'Raman Effect' by eminent Indian Physicist Sir Dr. C. V. Raman on 28th February 1928. He was awarded with the Nobel Prize in Physics for his discovery in the year 1930.

This year, the National Science Day Programme was organized by Dr. Indra Sulania, Scientist, IUAC, New Delhi with the support of many young brains. B.Sc., IInd and IIIrd years students from various colleges of University of Delhi and Jamia Millia Islamia were invited to participate in the event. The letters were sent to about 28 colleges from University of Delhi, Jamia Millia Islamia and Amity University.

The main highlights of the event are as follows:

- (ii) Around 89 participants participated in the event from different colleges and Institutes and 25 from our own Institute, IUAC.



Prof. Patrick Das Gupta, University of Delhi



Distinguished Participants

- (ii) The programme started with the opening remarks from Dr. D. Kanjilal, Director, IUAC.
- (iii) There was an excellent invited talk by Prof. Patrick Das Gupta, University of Delhi, Delhi, on 'The puzzle of Super-massive black holes'. He also talked about the recently discovered gravitational waves from the interaction or merging of two massive black holes, which was very much appreciated by the participants.
- (iii) The 'research highlights at IUAC' was presented by Mr Akhil Jhingan, IUAC, covering the basics of detection techniques used for the detection of various particles and rays.
- (iv) A talk on 'Pelletron Accelerator' was delivered by Mr Sunil Ojha, IUAC, giving us the overview of our accelerator facilities and its working principles.
- (v) A science quiz was also organized to make the programme more interactive with the students by Dr S A Khan.
- (vi) Visits to various facilities of IUAC was the key feature for the young students to give them the exposure of the facilities we have at IUAC.
- (vii) Participation certificates and TA were distributed to all the participants at the end of the programme.

The programme was organized successfully with the help of many scientists and students of IUAC. The efforts were very much appreciated by all and we look forward to making the programme even more interactive next year.

International Yoga Day Celebration

The Sports and Cultural Committee of IUAC organized a Yoga awareness camp to celebrate the 1st International Yoga Day on June 21, 2015.



Independence Day and Republic Day Celebrations

The Republic day was celebrated at IUAC by organizing sports competition among the children and residents of the campus. Similarly, The Independence Day was also celebrated by organizing competition among children on various topics like on the spot painting, elocution, acting and debate.



Republic Day Celebrations

Annual Cultural Programme

The annual cultural festival “SPANDAN” of IUAC for the year 2015 was organized by Sports & Cultural Committee on 21st November , 2015. About 70-80 children supported by the elders, participated in a function adorned by various regional dances, songs, instrumental music, mime show and drama.



Annual Cultural Celebrations