



Curriculum Vitae

Title	Dr. Mr.	First Name	SAMIT KUMAR	Last Name	MANDAL	
Designation		Professor				
Department		Physics & Astrophysics				
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Subject	Institution	Year	Details
Ph.D	Nuclear Science Centre, New Delhi (Degree awarded by University of Kalyani)	1998	Thesis topic: Investigation of Quasi Elastic Scattering around the barrier in a complex microscopic potential formalism
Pre-Ph.D	Nuclear Science Center (NSC), New Delhi	1992	Subjects: Accelerator Based Experimental Nuclear Physics
M.Sc	Sambalpur University	1990	Subjects: Nuclear Physics (Sp. Paper)

Career Profile			
Organisation / Institution	Designation	Duration	Role
Dept. Of Physics & Astrophysics, University of Delhi	Professor	13th Jan. 2011 – till date	Teaching & Research
Dept. Of Physics & Astrophysics, University of Delhi	Associate Professor	13th Jan. 2008-2011	Teaching & Research
Dept. Of Physics & Astrophysics, University of Delhi	Reader	13 th Jan. 2005-2008	Teaching & Research
Gesellschaft für Schwerionenforschung mbH, Darmstadt, Germany	Guest Scientist	July 1999 – 31st Dec. 2004	Research
Saha Institute of Nuclear Physics Kolkata	Research Associate	June 1998 – June 1999	Research
Nuclear Science Center, New Delhi.	Project Assistant	Dec. 1997-May 1998	Research
Nuclear Science Center, New Delhi	Junior Research Fellow of UGC & Senior Research Fellow of UGC	Nov. 1991 Nov. 1997	Research
Birla Industrial and Technological Museum Calcutta	Educational Assistant	Nov.1987 – Oct.1988	Trainee

Research Interests / Specialization

- Experience with radioactive beam facility (projectile fragmentations and also ISOL type) and associated detectors systems.
- Involved in the RISING (Rare Isotope Spectroscopic INvestigation at GSI) and AGATA (Advanced GAMMA Tracking Array) projects.
- Design and fabrication of gas detectors. Knowledge about Silicon, CsI, different types of plastic and gas detectors for particle identification. Experience with NaI, BaF, germanium-clover, germanium-cluster and segmented clover detectors for gamma ray identification.
- Knowledge about thin film making & target preparations.
- Extensive knowledge about detector simulation, ion-optics simulations, pulse shape analysis of germanium detectors etc.
- Experience with Multi branch data acquisition system and analysis programs(viz, PAW, ROOT,Go4, LEA, CANDEL etc).

Physics Interest:

- Multi-Nucleon transfer reaction and coupling effect at and near barrier energies.
- Study of nuclear reaction dynamics using nuclear scattering, transfer, break-up and fusion reaction at low energy. Threshold anomaly, Coupled channel effects etc.}
- Momentum distribution and spectroscopy of loosely bound nuclei.(^8B , $^{20-24}\text{O}$ etc.)
- g-factor measurement at low and relativistic energies.
- Nuclear structure studies using relativistic Coulomb excitation technique for drip line nuclei.
- Octupole collectivity for neutron rich nuclei (viz. Ba and neutron deficit Nd nuclei).
- Triaxiality and chirality of proton rich nuclei (viz. Nd, Ba, Cs nuclei)
- Structure study using decay spectroscopy around mass 180 region (K-isomer)
- Study of exotic structure for nuclei around mass 80 using fragmentation of relativistic heavy-ions.

Teaching Experience (Subjects/Courses Taught)

- 2015-2016: 1. Quantum Mechanics -II – 2nd Semester
2. Nuclear Physics Laboratory (Final) 3rd & 4th Semester
- 2016-2017: 1. Nuclear & Particle Physics – 1st Semester
2. Quantum Mechanics -II – 2nd Semester
3. Nuclear Physics Laboratory (Final) 4th Semester
- 2017-2018: 1. Nuclear & Particle Physics – 1st Semester
2. Quantum Mechanics -II – 2nd Semester
- 2018-2019: 1. Nuclear & Particle Physics – 1st Semester
2. Nuclear Physics Laboratory (Final) 3rd & 4th Semester

Honors & Awards

1. Attended one international conferences with funding approved from D.S.T, New Delhi. The D.S.T. support is considered as a “Young scientist” award (1996).
2. **Member** of a high level committee appointed by GSI/ Federal Republic of Germany (year 2004) to visit India under the Indian Govt. (DST) invitation to set-up a collaboration for FAIR project (a mega science project at Germany).
3. **Visiting Fellow:** GSI, Darmstadt, Germany 28 Feb. 2005 – 8 March 2005
4. **Member** of the FAIR –CDR (Facility for Anti-proton Ion Research at GSI) committee appointed by DST-DAE 2006.
5. **Visiting Fellow:** GSI, Darmstadt, Germany May. 2006 – July 2006
6. **Nominated and selected** for 3 month visit to South African University/Institute under Indo-South Africa Education Exchange Programme (EEP)-2009 by UGC.
7. **Visiting Fellow:** GSI, Darmstadt, Germany June. 2010 – July 2010

8. *Nominated and selected* for Indian National Science Academy (INSA) exchange program (2012) to visit Germany for 3 months.
9. **Member** (2013 - 2014), Accelerator User Committee (AUC), Inter University Accelerator Center, New Delhi.
10. **Nominated** for attending and represent Indian contributions to FAIR-NUSTAR project for NUSTAR week at Helsinki, Finland from 7-11 Oct. 2013 by Indo-FAIR Co-ordination Centre (IFCC) at Bose-Institute, the centre coordinating FAIR related activities in India under the guidance of the Department of Science and Technology and the Department of Atomic Energy, Government of India
11. **Member (2012 – till date-)** Board of Studies for Nuclear Science and Technology, Amity University
12. **Joint Secretary** (2014- 2018): Indian Physics Association
13. **Member (2018- till date)** Planning Committee of SERB School on Nuclear Physics
14. **Member (2018 -2019)** P.G. Board of Studies and research, Indira Gandhi University Meerpur, Rewari, (Haryana)
15. **Member of NUSTAR Council** (with voting right), FAIR-NUSTAR project, GSI, Darmstadt, Germany.

Total Publication Profile

Books

Nil

In Indexed/ Peer Reviewed Journals/conferences etc.

A) Refereed Journals :	~ 132
B) International Conferences :	~ 71
C) National Symposia/Workshops/Meetings :	~ 78
D) Technical reports :	~ 01
E) Invited talks & Seminars:	~ 75

Research Publications in Peer Reviewed Journals (Last 5 yrs. 2014-till date)

1. New spectroscopic information on $^{211,213}\text{Tl}$: A changing structure beyond the N=126 shell closure
A. Gottardo with **S Mandal** et al., Physical Review C 99, (2019) 054326, ISSN: 0556-2813/ Impact Factor: 3.146
2. *Effects of varying ion flux on high vacuum evaporated erbium thin films*
A Banerjee, GR Umapathy, SR Abhilash, S Ojha, D Kabiraj, **S Mandal**, Vacuum, 165 68, 2019, ISSN: 0042-207X/ Impact factor: 1.55

3. *Prediction of band-head spin of triaxial super-deformed bands using the modified VMI model*
Poonam Jain, V. S. Uma1, Alpana Goel and S. K. Mandal, Eur. Phys. J. Plus 134, 72 (2019) ISSN: 2190-5444 (Online) / Impact Factor: 2.612
4. *An annular parallel plate avalanche counter for heavy-ion γ -ray coincidence measurements*
Akhil Jhingan, HJ Wollersheim, R Kumar, M Saxena, R Ahuja, M Kumar, S Dutt, N Saneesh, T Varughese, **SK Mandal**, P Sugathan, Nuclear Instruments and Methods in Physics Research A, 922, 209 (2019), ISSN: 0168-9002/ Impact Factor: 1.362
5. *A compact scintillator based position sensitive detector system for gamma ray tracking applications* A Banerjee, **S Mandal**, Pratap Roy, S Mukhopadhyay, G Mukherjee, M Kumar, A Jhingan, R Palit, Nuclear Instruments and Methods in Physics Research A, 930, 100 (2019), ISSN: 0168-9002/ Impact Factor: 1.362
6. *Measurement of mass-gated neutron multiplicity for the reaction at 57.4 MeV excitation energy*
Meenu Thakur with **S Mandal** et al., Physical Review C 98, (2018) 014606, ISSN: 0556-2813/ Impact Factor: 3.304
7. *Material engineering to fabricate rare earth erbium thin films for exploring nuclear energy sources*
A Banerjee, SR Abhilash, GR Umamathy, D Kabiraj, S Ojha and **S Mandal**, Nuclear Instruments and Methods in Physics Research A, 887, 34 (2018), ISSN: 0168-9002/ Impact Factor: 1.362
8. *Fission Dynamics Studies of Near Super-heavy Compound Nucleus ^{256}Rf*
Meenu Thakur with **S. Mandal** et al., Acta Physica Polonica B 49 (2018) 631, ISSN: 0587-4254/ Impact Factor: 0.9
9. *Molecular Orbital interpretation to the couplings in collisions of 2.5 and 3 MeV $\text{Xe}10^+$, 12^+ -Au and Zr systems*
Punita Verma, Kajol Chakraborty, Ruchika Gupta, Sarvesh Kumar, Gaurav Sharma, Deepak Swami, **Samit K Mandal**, CP Safvan, Journal of Physics: Conference Series, 875 (2017) 092029. ISSN: 1742-6596
10. *Relationship between and effect of inelastic excitations and transfer channels on sub-barrier fusion enhancement*
Khushboo, **S. Mandal** et al Physical Review C 96, (2017) 014614, ISSN: 0556-2813/ Impact Factor: 3.146
11. *Engineering strain to achieve stable ^{92}Zr targets on carbon backing*
Khushboo, S.R. Abhilash, G.R. Umamathy, H. Duggal, D. Kabiraj, **S. Mandal**, Vacuum, 45 (2017) 14, ISSN: 0042-207X/ Impact factor: 1.55
12. *Binary fragmentation based studies for the near super-heavy compound nucleus ^{256}Rf*

- Meenu Thakur with **S. Mandal** et al., The European Physical Journal A 53, (2017) 133, ISSN: 1434-6001 and 1434-601X/ Impact Factor: 2.373
13. *Influence of positive q-value neutron transfer coupling on fusion enhancement in $^{28}\text{Si} + ^{154}\text{Sm}$ reaction.*
G Kaur with **S. Mandal** et al., Acta Physica Polonica B 48 (2017) 619 ISSN: 0587-4254/ Impact Factor: 0.9
 14. *Magnetic rotation phenomenon in the dipole ($\Delta I=1$) bands of transitional strontium (Sr) isotopes near $N=50$ shell closure*
N Kumar, S Kumar, **SK Mandal** et al., The European Physical Journal A 53 (2017), 25, ISSN: 1434-6001 & 1434-601X / Impact Factor: 2.373
 15. *Effect of coupling in the $^{28}\text{Si} + ^{154}\text{Sm}$ reaction studied by quasi-elastic scattering*
G Kaur with **S. Mandal** et al *Physical Review C* 94 (2016) 034613 ISSN: 0556-2813/ Impact Factor: 3.146
 16. *Polarization measurements and high-spin states in $^{86}_{38}\text{Sr}_{48}$*
N Kumar, with **S Mandal**, et al., *Nuclear Physics A* 955 (2016) 1, ISSN: 0375-9474/ Impact Factor: 1.258
 17. *Measurement of quasi-elastic scattering: to probe $^{28}\text{Si} + ^{154}\text{Sm}$ reaction*
G Kaur with **S. Mandal** et al Acta Physica Polonica B, 47 (2016) 847, ISSN: 0587-4254/ Impact Factor: 0.9
 18. *Barrier distribution from $^{28}\text{Si} + ^{154}\text{Sm}$ quasielastic scattering: Coupling effects in the fusion process*
G Kaur with **S. Mandal** et al., Eur. Phys. Journal: Web of Conferences 117 (2016) 08025 ISSN: 2100-014X
 19. *Negative-parity high-spin states and a possible magnetic rotation band in $^{135}_{59}\text{Pr}_{76}$*
Ritika Garg with **S. Mandal** et al, *Physical Review C* 92 (2015) 054325, ISSN: 0556-2813/ Impact Factor: 3.881
 20. *Study of nuclear structure of $^{76-86}\text{Sr}$ isotopes in the pn Interacting*
M. Saxna, J Gupta and **S Mandal**, *Physica Scripta* 90 (2015) 085303 ISSN: 0031-8949 / Impact Factor: 1.296
 21. *Isomeric Ratios in ^{206}Hg*
T. Alexander with **S. Mandal** et al *Acta Physica Polonica* B 46 (2015) 601 ISSN: 0587-4254/ Impact Factor: 0.9
 22. *Probing nuclear dissipation via evaporation residue excitation functions for the $^{16,18}\text{O} + ^{198}\text{Pt}$ reactions*
R Sandal with **S. Mandal** et al., *Physical Review C* 91 (2015) 044621 ISSN: 0556-2813/ Impact Factor: 3.881
 23. *Fabrication of self-supporting targets of lead ($^{206,208}\text{Pb}$) using evaporation technique*
S Goyal, **S Mandal** et al., *Nuclear Instruments and Methods in Physics Research A*, 777 (2015) 70 ISSN: 0168-9002/ Impact Factor: 1.316

24. *Effect of shell structure on neutron multiplicity of fissioning systems ^{220,222,224}Th nuclei*
S Goyal, **S Mandal** et al., Eur. Phys. Journal: Web of Conferences 86 (2015) 00013 ISSN (Electronic Edition): 2100-014X
25. *Neutron detector array at IUAC: Design features and instrumentation developments*
P Sugathan with **S Mandal** et al., Pramana 83 (2014) 807 ISSN: 0304-4289/ Impact Factor: 0.72
26. *Isomeric decay spectroscopy of the ²¹⁷Bi isotope*
A. Gottardo with **S Mandal** et al. *Physical Review C* 90 (2014)034317 ISSN: 0556-2813/ Impact Factor: 3.881
27. *Neutron detector array at IUAC: Design features and instrumentation developments*
P Sugathan with **S Mandal** et al., Pramana 83 (5), 807 (2014) ISSN: 0304-4289/ Impact Factor: 0.72
28. *Isomeric decay spectroscopy of the ²¹⁷Bi isotope*
A. Gottardo with **S Mandal** et al. *Physical Review C* 90, 034317 (2014) ISSN: 0556-2813/ Impact Factor: 3.881
29. *Rotational behavior of ^{120, 122, 124}Te*
M. Saxna with **S Mandal et al.** *Physical Review C* 90 (2), 024316 (2014) ISSN: 0556-2813/ Impact Factor: 3.881
30. *High spin band structure of ³⁸Sr ₄₇*
S. Kumar **S Mandal et al.** *Physical Review C* 90 (2), 024315 (2014) ISSN: 0556-2813/ Impact Factor: 3.881
31. *National Array of Neutron Detectors (NAND): A versatile tool for nuclear reaction studies*
KS Golda, with **S. Mandal** et al., *Nuclear Instruments and Methods in Physics Research A*, 763, 58 (2014), ISSN: 0168-9002/ Impact Factor: 1.316
32. *Excited states in the neutron-rich nucleus F ²⁵*
Z Vajta with **S Mandal et al.**, *Physical Review C* 89, 054323(2014) ISSN: 0556-2813/ Impact Factor: 3.881
33. *β -decay studies of neutron-rich Tl, Pb, and Bi isotopes.*
Al. Morales with **S Mandal et al.**, *Physical Review C* 89, 014324 (2014) ISSN: 0556-2813/ Impact Factor: 3.881
34. *Pulse Shape Analysis of a two fold clover detector with an EMD based new algorithm: A Comparison.*
Davinder Siwal, **S. Mandal** et al., *Nuclear Instruments and Methods in Physics Research A* , 741, 108(**2014**), ISSN: 0168-9002/ Impact Factor: 1.316
35. *Detector system for the study of low energy heavy ion reactions using kinematic coincidence technique.*
A. Jhingan with **S. Mandal** et al., *Nuclear Instruments and Methods in Physics Research A* 745, 106 (2014) ISSN: 0168-9002/ Impact Factor: 1.316
36. *Exotic decay of hot rotating nuclei near proton drip line*
J Ray with **S. Mandal** et al., Eur. Phys. Journal : Web of Conferences 66, 02089 (2014) ISSN

(Electronic Edition): 2100-014X

37. New Isomers in the Neutron-Rich Region Beyond ^{208}Pb
A Gottardo with **S. Mandal** et al., Eur. Phys. Journal : Web of Conferences 66, 02043 (2014) ISSN
(Electronic Edition): 2100-014X
38. Effect of N/Z in pre-scission neutron multiplicity for $^{16,18}\text{O} + ^{194,198}\text{Pt}$ systems
R Sandal with **S. Mandal** et al., Eur. Phys. Journal : Web of Conferences 66, 03006 (2014)) ISSN
(Electronic Edition): 2100-014X

Participation in conferences, seminars, workshops

B: Invited Talk / Seminar etc. (National/International): Last 5yrs. (2014-till date)

1. **Title of the Presentation:** *Nuclear Astrophysics with NuSTAR*
Evening Lecture on 25th February 2019: SERB School on nuclear astrophysics 2019, February 11 - March 2, 2019, at Saha Institute of Nuclear Physics, Kolkata
2. **Title of the Presentation:** *Gamma Tracking Array: A new generation high resolution gamma ray spectrometer for exotic nuclear structure studie.*
International conference on Physics, Society and Technology (ICPST-2019), held on 17-19th January, 2019 at the University Conference Hall, University of Delhi, organized by Deshbandhu College, University of Delhi, Kalkaji, New Delhi-110019., January 18, 2019.
3. **Title of the Presentation:** *Gamma Tracking Array: A new generation high resolution gamma ray spectrometer for exotic nuclear structure studies*
National Conference on “Recent Trends in Research in Applied Sciences: An Interdisciplinary Approach”, December 7-8, 2018, N. P. University, Medininagar, Jharkhand
4. **Title of the Presentation:** *Multi-nucleon transfer reaction dynamics near Coulomb barrier,*
International conference on nuclear, particle and accelerator physics (ICNPAP-2018) October 23-26, 2018, Central University of Jharkhand, Ranchi, Jharkhand, India
5. **Title of the Presentation:** *Gamma Tracking Array: A new generation high resolution gamma ray spectrometer for exotic nuclear structure studies*
Seminar delivered on August 3, 2018, IIT Roorkee
6. **Title of the Presentation:** *Instrumentation for Scanner Systems : Gamma Ray Tracking Array*
Present and Future of Nuclear Instrumentation in India”, December 19, 2017, IIT Ropar

7. **Title of the Presentation:** *Multi-nucleon transfer and their effect on the reaction mechanism near Coulomb barrier*
International Conference In Nuclear Physics With Energetic Heavy Ion Beams"
Department of Physics, Panjab University, Chandigarh on 15 - 18 March, 2017
8. **Title of the Presentation:** *A new Generation Gamma Detector Array: Gamma ray Tracking and Pulse Shape Analysis*
National Conference on Nuclear and Accelerator Physics (NCNAP-2016), Centre for Applied Physics Central University of Jharkhand, Ranchi, October 4-6, 2016
9. **Title of the Presentation:** *New Generation Gamma-ray Detector Array : Gamma Ray Tracking & Pulse Shape analysis*
School on experimental techniques in gamma-ray spectroscopy, 25 - 29 April, 2016, Inter University Accelerator Centre, New Delhi
10. **Title of the Presentation:** *Dynamical effects in fusion fission reaction mechanism for mass above 200*
Workshop on Fission studies using Neutron Detector Array & GPSC facility, 28-29 March 2016, Inter University Accelerator Centre, New Delhi
11. **Title of the Presentation:** *Multi-neutrons transfer and their effect on the mechanism of near barrier fusion reaction*
National Conference on Recent Trends in Nuclear Physics" to be held during 15-16 February, 2016, Aligarh Muslim University, Aligarh
12. **Title of the Presentation:** *NuSTAR – DEGAS and Indian Participation*
Recent Trends in Nuclear structure and its Implication in Astrophysics, 4-8, January 2016, organised by TIFR, Mumbai & Institute of Physics Bhubaneswar at Hotel Blue Lily, Puri
13. **Title of the Presentation:** *Femto Physics & Challenges: Exotic nuclei spectroscopy*
Recent Trends of Research in Basic Sciences, 27th Oct. 2015, Knowledge Consortium of Gujarat, Ahmedabad.
14. **Title of the Presentation:** *Multi-nucleon transfer and their effect on the reaction mechanism near Coulomb barrier*
Workshop on " Recent trends in Nuclear physics, Sep. 14-15, 2015, Inter University Accelerator Centre, New Delhi
15. **Title of the Presentation:** *A new generation Gamma ray detector array*
Seminar Programme on "Recent Advances in Accelerators and Detector Technology for Nuclear Science" 20th March 2015, Panjab University Chandigarh.
16. **Title of the Presentation:**
DAE Symposium on Nuclear Physics, 8th-12th December 2014, Banaras Hindu University, Varanasi
17. **Title of the Presentation:** *Inflight spectroscopy of exotic isotopes (3 lectures)*
DST-SERC school on Nuclear Structure at High Angular Momentum and Isospin, October 5 – 25, 2014, Tata Institute of Fundamental Research, Mumbai
18. **Title of the Presentation:** *Femto Physics & Challenges: Exotic nuclei spectroscopy (2 lectures)*
Refresher course in Physics 26th September 2014 Academic Staff College, Jawaharlal Nehru University, New Delhi
19. **Title of the Presentation:** *Nuclear Reaction (3 lectures)*
Winter School on Accelerator, Nuclear and Particle Physics, March 29, 2014 to April

- 04, 2014 Physics Department, Banaras Hindu University, Varanasi
20. **Title of the Presentation:** *Transfer Reaction*
FUSION14 (Satellite event) A two day school on Nuclear reactions around the Coulomb barrier, February 21-22, 2014, Inter University Accelerator Centre, New Delhi.
 21. **Title of the Presentation:** *Future INGA*
INGA-PICC meeting 17-18 February, 2014, VECC, Kolkata.
 22. **Title of the Presentation:** Multi-nucleon transfer: a probe to investigate the reaction mechanism around the barrier.
India-UK Seminar in Nuclear Physics at *ISOLDE*, 22–24 January 2014, Department of Physics, Panjab University, Chandigarh.

C: Colloquium talk:

1. **Title of the Presentation:** *Femto Physics & Challenges: Exotic nuclei spectroscopy*
Physics Society of Ramjas College, New Delhi, February 14th ,2017
2. **Title of the Presentation:** Femto Physics & it's Applications
Bluebells School International, New Delhi, July 27th , 2016,

Public Service / University Service / Consulting Activity

- 1.) Convener, AERB committee, Appointed by University of Delhi
- 2.) Convener, A Training programme "Radiation Safety Aspect of Use of Ionizing Radiation Application at Delhi University", 01-03, December, 2010, organized by Atomic Energy Regulatory Board (AERB), Mumbai
- 3.) Local convener, DAE-BRNS Nuclear Physics Symposium 2012 (which was held at University of Delhi from 3rd -7th Dec. 2012)
- 4.) Convener, Student Orientation Program 2012 (which was held at University of Delhi on 2nd Dec. 2012)
- 5.) Convener, VISITORS Programme 2015 (organized by Dept. of Physics & Astrophysics, University of Delhi)

Professional Societies Memberships

Life Member, Indian Physical Association

Projects (Major Grants / Collaborations)

Member of the following collaboration :

1. **PRESPEC** collaboration: GSI, Germany
2. **AGATA** collaboration: European collaboration
3. **FAIR** collaboration: GSI, Germany
4. **INO** Collaboration: India

Beam Time Projects at IUAC, New Delhi (completed /ongoing):

1. *Investigation of multi-nucleon transfer reactions in ^{40}Ca on $^{68,70}\text{Zn}$ at and near the Coulomb barrier*, Beam time project at IUAC, Funding agency: Inter University Accelerator Center (IUAC), New Delhi
2. *Investigation of multi-nucleon transfer reactions in medium mass nuclei at and near the Coulomb barrier using IUAC accelerator facility.* Funding agency: DU, New Delhi

3. *Few nucleon transfer between ground states and excited states in $^{34}\text{S} + ^{90,94}\text{Zr}$ around the Coulomb barrier. Beam time project at IUAC, Funding agency: IUAC, New Delhi*
4. *Investigation of one phonon mixed symmetry states in even-even isotopes of Tellurium, Funding agency IUAC*
5. *Investigation of Fission reaction dynamics and Neutron multiplicity in the mass region ~ 200 , Funding agency: IUAC.*

Major projects (on going):

1. **Principal Investigator, DST-SERB-Project:** Multi-nucleon transfer reaction dynamics and its effect on fusion near the Coulomb barrier for medium mass nuclei (March 2019 -)
2. **Co-Principal Investigator, DST-Project:** Indian Institutions-Fermilab collaboration in neutrino physics (April 2019-)
3. **Principal Investigator, IUAC-project:** *Investigation of few-nucleons transfer and fusion reaction mechanism in medium mass nuclei at and near the Coulomb barrier (2015 -*
4. **Principal Investigator, DST-Project:** *FAIR project: Pre-Operative Programme for Indian participation in the FAIR Project at GSI, Darmstadt, Germany – Accelerator and Detector-Related R&D and Prototyping” under the project Gamma Spectroscopy at NUSTAR (2009-2014)*
5. **Principal Investigator, IUAC-project:** *Investigation of few-nucleons transfer reaction in medium mass nuclei at and near the Coulomb barrier (2012 -15)*
6. **Co-principal Investigator, DST-Project:** *Proposal of a National Array of Neutron Detectors (NAND) for Studies of Nuclear Reaction Dynamics from near Barrier Energy to Intermediate Energy (2010-17)*
7. **Principal Investigator:** *Investigation of multi-nucleon transfer dynamics by heavy ion induced reactions using stable and exotic projectiles. Indo-German (DST-DAAD) PPP-2009*
8. **Co-Investigator:** *Study of exotic nuclei far from stability by means of high intensity ion beams. Indro-Italian Executive Programme of S&T Co-operation 2008-2010,*
9. **Co-principal Investigator, DST-Project:** *Resistive plate chamber research & development, fabrication, testing & neutrino simulation studies for INO-ICAL experiments. (2011-13)*
10. **Co- Principal Investigator: DST project,** *A proposal by Indian Physicists to Collaborate on Neutrino Project at Fermilab. (2012 –17)*
11. **Co- Principal Investigator: DST project:** *R & D Efforts by University Groups for INO project. (2013-2019)*