

Ajay Y. Deo, Ph.D.

Department of Physics,
Indian Institute of Technology Roorkee,
Roorkee - 247667, Uttarakhand, INDIA

✉ ajay.deo@ph.iitr.ac.in ☎ +91-1332-285566

🌐 <https://ph.iitr.ac.in/~PH/aydeofph>



Employment History

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| Oct. 2023 – | 📌 Associate Professor , Department of Physics, IIT Roorkee, INDIA |
| Nov. 2012 – Oct. 2023 | 📌 Assistant Professor , Department of Physics, IIT Roorkee, INDIA |
| May 2012 – Nov. 2012 | 📌 Research Associate , UM-DAE Centre for Excellence in Basic Sciences, Mumbai, INDIA |
| Sept. 2011 – Apr. 2012 | 📌 Adjunct Faculty , Department of Physics and Applied Physics, University of Massachusetts Lowell, MA, USA |
| May 2010 – Apr. 2012 | 📌 Post-Doctoral Research Associate , Department of Physics and Applied Physics, University of Massachusetts Lowell, MA, USA |
| Feb. 2008 – May 2010 | 📌 Research Fellow , Department of Physics, University of Surrey, Guildford, UK |
| Aug. 2006 – Jan. 2008 | 📌 Postdoctoral Fellow , Tata Institute of Fundamental Research, Mumbai, INDIA |

Education

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| 2000 – 2006 | 📌 Ph.D., University of Mumbai.
Thesis title: <i>Structure of light, neutron-deficient nuclei.</i> |
| 1998 – 2000 | 📌 M.Sc. Physics, University of Mumbai. |
| 1995 – 1998 | 📌 B.Sc. Physics, University of Mumbai. |

Research Interest

Experimental Nuclear Physics:

- 📌 Nuclear Structure at High Angular Momentum using High Resolution Gamma-ray Spectroscopy
- 📌 Decay Spectroscopy: Beta- and Alpha-decay studies using Radioactive Ion Beams
- 📌 Alpha-Clustering in Heavy Nuclei
- 📌 Nuclear Isomerism, Fast-Timing Technique, Sub-picosecond Half-life Measurements
- 📌 Nuclear Instrumentation
- 📌 Development of analysis tools using ROOT data-analysis framework

Research Publications

Journal Articles

- 1 Dhananjaya Sahoo, Madhu, **A. Y. Deo**, Yashraj, U. S. Ghosh, Indu Bala, R. P. Singh, et al., *Characterization of $2'' \times 2''$ LaBr₃(Ce) scintillators for fast-timing spectroscopy*, [Nucl. Instrum. Methods Phys. Res. A](#) **1074**, 170308 (2025).
- 2 Dhananjaya Sahoo, **A. Y. Deo**, Madhu, Khamosh Yadav, S. S. Tiwary, P. C. Srivastava, R. Palit, et al., *In-beam γ -spectroscopy of ^{217}Ac* , [Phys. Rev. C](#) **111**, 014318 (2025).

- 3 Madhu, A. Y. Deo, Khamosh Yadav, Dhananjaya Sahoo, Y. Y. Wang, Y. K. Wang, J. Meng, et al., *Coexisting single-particle excitations and octupole correlations in the transitional nucleus ^{217}Ra* , [Phys. Rev. C **108**, 014309 \(2023\)](#).
- 4 Khamosh Yadav, A. Y. Deo, Madhu, Dhananjaya Sahoo, P. C. Srivastava, Saket Suman, S. K. Tandel, et al., *High-spin spectroscopy in ^{207}At : Evidence of a $29/2^+$ isomeric state*, [Phys. Rev. C **107**, 054303 \(2023\)](#).
- 5 Madhu, Khamosh Yadav, A. Y. Deo, Pragati, P. C. Srivastava, S. K. Tandel, S. G. Wahid, et al., *Evolution of nuclear structure through isomerism in ^{216}Fr* , [Phys. Rev. C **105**, 034308 \(2022\)](#).
- 6 Khamosh Yadav, A. Y. Deo, Madhu, Pragati, P. C. Srivastava, S. K. Tandel, S. G. Wahid, et al., *Level structure in the transitional nucleus ^{215}Fr* , [Phys. Rev. C **105**, 034307 \(2022\)](#).
- 7 J. A. Briz, M. J. G. Borge, B. Rubio, J. Agramunt, A. Algora, A. Y. Deo, M. E. Estévez Aguado, et al., *Clarifying the structure of low-lying states in ^{72}Br* , [Phys. Rev. C **105**, 014323 \(2022\)](#).
- 8 A. Y. Deo, Khamosh Yadav, Madhu, S. K. Tandel, and R. Kumar, *Antimagnetic rotation and role of gradual neutron alignment in ^{103}Pd* , [Eur. Phys. J. A **57**, 126 \(2021\)](#).
- 9 S. G. Wahid, S. K. Tandel, Saket Suman, M. Hemalatha, Anurag Patel, Poulomi Roy, A. Y. Deo, et al., *Metastable states from multinucleon excitations in ^{202}Tl and ^{203}Pb* , [Phys. Rev. C **102**, 024329 \(2020\)](#).
- 10 A. Gottardo, J. J. Valiente-Dobón, G. Benzoni, A. I. Morales, A. Gadea, · · ·, A. Y. Deo, et al., *New spectroscopic information on $^{211,213}\text{Tl}$: A changing structure beyond the $N = 126$ shell closure*, [Phys. Rev. C **99**, 054326 \(2019\)](#).
- 11 Pragati, A. Y. Deo, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai, S. G. Wahid, et al., *Parity doublet structures in doubly-odd ^{216}Fr* , [Phys. Rev. C **97**, 044309 \(2018\)](#).
- 12 S. Biswas, R. Palit, J. Sethi, S. Saha, A. Raghav, · · ·, A. Y. Deo, et al., *High-spin states in ^{133}Cs and the shell model description*, [Phys. Rev. C **95**, 064320 \(2017\)](#).
- 13 Pragati, A. Y. Deo, Zs. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt, et al., *Decay of the $N = 126$, ^{213}Fr nucleus*, [Phys. Rev. C **94**, 064316 \(2016\)](#).
- 14 A. J. Mitchell, C. J. Lister, E. A. McCutchan, M. Albers, A. D. Ayangeakaa, · · ·, A. Y. Deo, et al., *γ -soft ^{146}Ba and the role of nonaxial shapes at $N \approx 90$* , [Phys. Rev. C **93**, 014306 \(2016\)](#).
- 15 A. Akber, M. W. Reed, P. M. Walker, Yu. A. Litvinov, G. J. Lane, · · ·, A. Y. Deo, et al., *Increased isomeric lifetime of hydrogen-like ^{192m}Os* , [Phys. Rev. C **91**, 031301 \(2015\)](#).
- 16 A.J. Mitchell, P.F. Bertone, B. DiGiovine, C.J. Lister, M.P. Carpenter, · · ·, A. Y. Deo, et al., *The X-Array and SATURN: A new decay-spectroscopy station for CARIBU*, [Nucl. Instrum. Methods Phys. Res., Sect. A **763**, 232–239 \(2014\)](#).
- 17 A. Gottardo, J. J. Valiente-Dobón, G. Benzoni, S. Lunardi, A. Gadea, · · ·, A. Y. Deo, et al., *Isomeric decay spectroscopy of the ^{217}Bi isotope*, [Phys. Rev. C **90**, 034317 \(2014\)](#).
- 18 S.S. Hota, P. Chowdhury, T.L. Khoo, M.P. Carpenter, R.V.F. Janssens, · · ·, A. Y. Deo, et al., *$N = 151$ Pu, Cm and Cf nuclei under rotational stress: Role of higher-order deformations*, [Phys. Lett. B **739**, 13–18 \(2014\)](#).
- 19 A. I. Morales, G. Benzoni, A. Gottardo, J. J. Valiente-Dobón, N. Blasi, · · ·, A. Y. Deo, et al., *β -decay studies of neutron-rich Tl, Pb, and Bi isotopes*, [Phys. Rev. C **89**, 014324 \(2014\)](#).
- 20 A.M. Denis Bacelar, A.M. Bruce, Zs. Podolyák, N. Al-Dahan, M. Górska, · · ·, A. Y. Deo, et al., *The population of metastable states as a probe of relativistic-energy fragmentation reactions*, [Physics Letters B **723**, 302–306 \(2013\)](#).
- 21 A. Gottardo, J.J. Valiente-Dobón, G. Benzoni, A. Gadea, S. Lunardi, · · ·, A. Y. Deo, et al., *New μ s isomers in the neutron-rich ^{210}Hg nucleus*, [Physics Letters B **725**, 292–296 \(2013\)](#).

- 22 D. Shubina, R. B. Cakirli, Yu. A. Litvinov, K. Blaum, C. Brandau, · · ·, **A. Y. Deo**, et al., *Schottky mass measurements of heavy neutron-rich nuclides in the element range $70 \leq Z \leq 79$ at the GSI Experimental Storage Ring*, [Phys. Rev. C **88**, 024310 \(2013\)](#).
- 23 S. K. Tandel, M. Hemalatha, **A. Y. Deo**, S. B. Patel, R. Palit, T. Trivedi, J. Sethi, S. Saha, D. C. Biswas, and S. Mukhopadhyay, *Evolution of octupole collectivity in ^{221}Th* , [Phys. Rev. C **87**, 034319 \(2013\)](#).
- 24 N. Al-Dahan, P. H. Regan, Zs. Podolyák, P. M. Walker, N. Alkhomashi, · · ·, **A. Y. Deo**, et al., *Multiple β^- decaying states in ^{194}Re : Shape evolution in neutron-rich osmium isotopes*, [Phys. Rev. C **85**, 034301 \(2012\)](#).
- 25 G. Benzoni, A.I. Morales, J.J. Valiente-Dobón, A. Gottardo, A. Bracco, · · ·, **A. Y. Deo**, et al., *First measurement of beta decay half-lives in neutron-rich Tl and Bi isotopes*, [Physics Letters B **715**, 293–297 \(2012\)](#).
- 26 A. Gottardo, J. J. Valiente-Dobón, G. Benzoni, R. Nicolini, A. Gadea, · · ·, **A. Y. Deo**, et al., *New Isomers in the Full Seniority Scheme of Neutron-Rich Lead Isotopes: The Role of Effective Three-Body Forces*, [Phys. Rev. Lett. **109**, 162502 \(2012\)](#).
- 27 M. W. Reed, P. M. Walker, I. J. Cullen, Yu. A. Litvinov, D. Shubina, · · ·, **A. Y. Deo**, et al., *Long-lived isomers in neutron-rich $Z = 72 - 76$ nuclides*, [Phys. Rev. C **86**, 054321 \(2012\)](#).
- 28 C Rodríguez Triguero, A M Bruce, T Eronen, I D Moore, M Bowry, A M Denis Bacelar, **A. Y. Deo**, et al., *Trap-assisted separation of nuclear states for gamma-ray spectroscopy: the example of ^{100}Nb* , [Journal of Physics G: Nuclear and Particle Physics **39**, 015101 \(2011\)](#).
- 29 T. Trivedi, R. Palit, J. Sethi, S. Saha, S. Kumar, · · ·, **A. Y. Deo**, et al., *Small quadrupole deformation for the dipole bands in ^{112}In* , [Phys. Rev. C **85**, 014327 \(2012\)](#).
- 30 H. Pai, G. Mukherjee, A. Raghav, R. Palit, C. Bhattacharya, · · ·, **A. Y. Deo**, et al., *Structural change of the unique-parity $\pi h_{11/2} \otimes \nu h_{11/2}$ configuration in ^{134}Cs* , [Phys. Rev. C **84**, 041301 \(2011\)](#).
- 31 D.D. DiJulio, J. Cederkall, C. Fahlander, A. Ekström, P. Golubev, · · ·, **A. Y. Deo**, et al., *Electromagnetic properties of vibrational bands in ^{170}Er* , [Eur. Phys. J. A **47**, 25 \(2011\)](#).
- 32 **A. Y. Deo**, Zs. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt, L. M. Fraile, et al., *Structures of ^{201}Po and ^{205}Rn from EC/β^+ –decay studies*, [Phys. Rev. C **81**, 024322 \(2010\)](#).
- 33 M. W. Reed, I. J. Cullen, P. M. Walker, Yu. A. Litvinov, K. Blaum, · · ·, **A. Y. Deo**, et al., *Discovery of Highly Excited Long-Lived Isomers in Neutron-Rich Hafnium and Tantalum Isotopes through Direct Mass Measurements*, [Phys. Rev. Lett. **105**, 172501 \(2010\)](#).
- 34 R. Palit, **A. Y. Deo**, Z. Naik, S. Sihotra, S. Kumar, P.K. Joshi, D. Mehta, and H.C. Jain, *Structure of degenerate dipole bands in ^{106}In and investigation of similar structure in neighbouring odd-odd isotopes*, [Nuclear Physics A **834**, 81c–83c \(2010\)](#).
- 35 S. Sihotra, Z. Naik, R. Palit, **A. Y. Deo**, S. Kumar, P. K. Joshi, D. Mehta, and N. Singh, *Level structures in the ^{107}In nucleus and their microscopic description*, [Eur. Phys. J. A **43**, 45–53 \(2010\)](#).
- 36 N. Al-Dahan, Zs. Podolyák, P. H. Regan, M. Górska, H. Grawe, · · ·, **A. Y. Deo**, et al., *Nuclear structure “southeast” of ^{208}Pb : Isomeric states in ^{208}Hg and ^{209}Tl* , [Phys. Rev. C **80**, 061302 \(2009\)](#).
- 37 R. Chakrabarti, S. Mukhopadhyay, Krishichayan, A. Chakraborty, A. Ghosh, · · ·, **A. Y. Deo**, et al., *Experimental study of nuclei in the vicinity of the “island of inversion” through the fusion-evaporation reaction*, [Phys. Rev. C **80**, 034326 \(2009\)](#).
- 38 **A. Y. Deo**, R. Palit, Z. Naik, S. Sihotra, S. Kumar, P. K. Joshi, I. Mazumdar, et al., *Structure of dipole bands in ^{106}In* , [Phys. Rev. C **79**, 067304 \(2009\)](#).
- 39 S. Sihotra, R. Palit, Z. Naik, K. Singh, P. K. Joshi, **A. Y. Deo**, J. Goswamy, et al., *Multiple band structures of ^{131}Cs* , [Phys. Rev. C **78**, 034313 \(2008\)](#).

- 40 S. Kumar, R. Palit, H. C. Jain, I. Mazumdar, P. K. Joshi, S. Roy, **A. Y. Deo**, Z. Naik, S. S. Malik, and A. K. Jain, *High spin structure of ^{139}Nd* , *Phys. Rev. C* **76**, 014306 (2007).
- 41 **A. Y. Deo**, S. B. Patel, S. K. Tandel, S. Muralithar, R. P. Singh, R. Kumar, R. K. Bhowmik, et al., *Systematics of the shears mechanism in silver isotopes*, *Phys. Rev. C* **73**, 034313 (2006).
- 42 **A. Y. Deo**, S. K. Tandel, S. B. Patel, P. V. Madhusudhana Rao, S. Muralithar, R. P. Singh, R. Kumar, R. K. Bhowmik, and Amita, *Lifetime measurements in ^{112}Sb* , *Phys. Rev. C* **71**, 017303 (2005).

Conference Proceedings

- 1 Dhananjaya Sahoo, **A. Y. Deo**, Shabir Dar, Madhu, Khamosh Yadav, S. S Tiwary, R. Palit, S. K. Tandel et al., *Revisiting the alternating-parity structures in ^{218}Ac* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **68** (2024), p. 257.
- 2 Dhananjaya Sahoo, **A. Y. Deo**, Madhu, Khamosh Yadav, S. S Tiwary, S. K. Tandel, R. Palit et al., *Revisiting the decay of the $29/2^+$ isomer in ^{217}Ac* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **67** (2023), p. 219.
- 3 Madhu, **A. Y. Deo**, Khamosh Yadav, Dhananjaya Sahoo, Saket Suman, S. K. Tandel, A. Sharma et al., *Revisiting high-spin states in ^{216}Ra* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **67** (2023), p. 109.
- 4 Khamosh Yadav, **A. Y. Deo**, Madhu, Dhananjaya Sahoo, P. C. Srivastava, Saket Suman, S. K. Tandel et al., *High-spin states and isomers in ^{207}At* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **66** (2022), p. 54.
- 5 Madhu, **A. Y. Deo**, Khamosh Yadav, Saket Suman, S. K. Tandel, A. Sharma, I. Ahmed et al., *Evidence of parity-doublet structures in ^{217}Ra [Best Poster Award]*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **66** (2022), p. 118.
- 6 Dhananjaya Sahoo, S. S. Tiwary, **A. Y. Deo**, *Timing characteristics of fast scintillating $2'' \times 2''$ $\text{LaBr}_3(\text{Ce})$ detectors*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **66** (2022), p. 1110.
- 7 Madhu, **A. Y. Deo**, Pragati, Khamosh Yadav, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty et al., *Search for non-natural parity states in ^{213}At* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **64** (2019), p. 210.
- 8 Khamosh Yadav, **A. Y. Deo**, Pragati, Madhu, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, et al., *Revisiting isomeric states in ^{215}Fr* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **64** (2019), p. 206.
- 9 Kaushik Katre, K. Suryanarayana, A. Tejaswi, M. Kumar Raju, M. Ratna Raju, · · · **A. Y. Deo** et al., *Spin assignment of a dipole band in ^{104}Ag* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **64** (2019), p. 192.
- 10 Khamosh Yadav, **A. Y. Deo**, Pragati, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai et al., *Evidence of high-spin isomers in ^{216}Fr* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 182.
- 11 S. G. Wahid, S. K. Tandel, A. Patel, S. Suman, P. Roy, M. Hemalatha, **A. Y. Deo** et al., *Single-particle states and isomers in ^{202}Tl and ^{203}Pb* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 228.
- 12 P. Roy, S.K. Tandel, S.G. Wahid, S. Suman, A. Patel, M. Hemalatha, **A. Y. Deo** et al., *Isomers and intrinsic excitations at high spin in ^{201}Tl* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 238.
- 13 K. Rojeeta Devi, Suresh Kumar, R. Palit, Neelam, Neeraj Kumar, · · · **A. Y. Deo** et al., *Transition probability ratios of dipole band in ^{129}La* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 316.
- 14 D. Choudhury, R. Goswami, S.S. Ghugre, R Raut, **A. Y. Deo**, A.K. Sinha, *Octupole Correlations in ^{106}Cd* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 322.
- 15 Pragati, **A. Y. Deo**, Khamosh Yadav, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai et al., *In-beam spectroscopy of ^{215}Fr* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 164.
- 16 S. G. Wahid, S. K. Tandel, A. Patel, S. Suman, P. Roy, M. Hemalatha, **A. Y. Deo** et al., *High spin isomer in ^{202}Tl* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 298.

- 17 P. Roy, S. K. Tandel, S. G. Wahid, S. Suman, A. Patel, M. Hemalatha, **A. Y. Deo** et al., *Intrinsic states at high spin in ^{201}Tl* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 300.
- 18 Pragati, **A. Y. Deo**, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai, S. G. Wahid et al., *High spin states in ^{216}Fr* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **61** (2016), p. 312.
- 19 **A. Y. Deo**, Pragati, Zs. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt et al., *The decay of $N = 126$, ^{213}Fr nucleus*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **60** (2015), p. 70.
- 20 K. Suryanarayana, A. Tejaswi, M. Kumar Raju, M. Ratna Raju, D. Vijaya Lakshmi, . . . **A. Y. Deo** et al., *Re-examination of Dipole Band in ^{104}Ag* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **59** (2014), p. 292.
- 21 J. Sethi, R. Palit, S. Saha, D. Choudhury, T. Trivedi, . . . **A. Y. Deo** et al., *First experimental signature of two-shears mechanism in ^{112}In* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **59** (2014), p. 118.
- 22 Pragati, **A. Y. Deo**, S.B. Patel, S.S. Ghugre, A.K. Sinha, K. Basu, S.K. Basu et al., *Angular momentum population in incomplete fusion reactions*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **59** (2014), p. 110.
- 23 **A. Y. Deo**, S.K. Tandel, S.B. Patel, M. Hemalatha, R. Palit, J. Sethi, S. Saha, D.C. Biswas, S. Mukhopadhyay, *Fission characteristics of the ^{224}Th compound nucleus*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **57** (2012), p. 222.
- 24 **A. Y. Deo**, C.J. Lister, P. Chowdhury, F.G. Kondev, P.F Bertone, K. Teh, S. Lakshmi et al., *Performance of the X-ARRAY at ANL*, in APS-DNP2011 Meeting at Michigan State University (2011).
- 25 T. Trivedi, R. Palit, J. Sethi, S. Saha, Z. Naik, . . . **A. Y. Deo** et al., *Small axially symmetric deformation for the dipole band in ^{112}In* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **56** (2011), p. 226.
- 26 H. Pai, G. Mukherjee, S. Bhattacharyya, T. Bhattacharjee, R. Palit, **A. Y. Deo**, P.K. Joshi et al., *High spin spectroscopy of ^{134}Cs* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **54** (2009), p. 88.
- 27 A. Raghav, R. Palit, Z. Naik, S. Sharma, **A. Y. Deo**, V.V. Parkar, B. S. Naidu et al., *High spin structure of ^{133}Cs* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **54** (2009), p. 86.
- 28 N. Al-Dahan, Zs. Podolyák, P.H. Regan, S.J. Steer, A.M. Denis Bacelar . . . **A. Y. Deo** et al., *Structure of $N \geq 126$ nuclei produced in fragmentation of ^{238}U* , in AIP Conference Proceedings, Vol. 1090 (2008), p. 145.
- 29 **A. Y. Deo**, R. Palit, Z. Naik, S. Sihotra, S. Kumar, P. K. Joshi, I. Mazumdar, R. Chakrabarti, R. Kshetri, *Spectroscopy of Indium isotopes: understanding evolution of shears mechanism*, in 50th Anniversary Symposium on Nuclear Sizes and Shapes (2008).
- 30 Sudatta Ray, I. Ray, Ritesh Kshetri, R. Raut, S. Ganguly, . . . **A. Y. Deo** et al., *Spectroscopy of ^{37}Ar , ^{36}Cl and the role of pf orbitals*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 353.
- 31 R. Palit, V. V. Parkar, Z. Naik, H. C. Jain, P. K. Joshi, . . . **A. Y. Deo** et al., *Investigation of positive parity degenerated dipole bands in ^{133}Ce* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 323.
- 32 R. Chakrabarti, S. Mukhopadhyay, Krishichayan, A. Chakraborty, A. Ghosh, . . . **A. Y. Deo** et al., *Study of intruder configurations in the neutron-rich $N \approx 20$ nuclei*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 317.
- 33 S. Sihotra, Z. Naik, R. Palit, **A. Y. Deo**, S. Kumar, P. K. Joshi, D. Meheta and N. Singh, *Structures of Dipole bands of ^{107}In* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 235.
- 34 Suresh Kumar, A. K. Jain, Alpana Goel, S. S. Malik, R. Palit, . . . **A. Y. Deo** et al., *The structure of ^{136}Ba using HI reaction*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 292.
- 35 R. Chakrabarti, S. Mukhopadhyay, Krishichayan, A. Chakraborty, A. Ghosh, . . . **A. Y. Deo** et al., *Gamma-ray spectroscopy of neutron-rich $^{33,34}\text{P}$ nuclei following $^{18}\text{O} + ^{18}\text{O}$ fusion reaction at 34 MeV*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 195.

- 36 Z. Naik, R. Palit, S. Sihotra, **A. Y. Deo**, D. Mehta, and C. R. Praharaj, *Microscopic explanation of observed band structures of ^{131}Cs* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 199.
- 37 **A. Y. Deo**, R. Palit, S. Sihotra, Z. Naik, S. Kumar et al., *High spin states in ^{106}In* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 193.
- 38 S. Mukhopadhyay, Krishichayan, S. Ray, A. Chakraborty, S. S. Ghugre, U. Garg, **A. Y. Deo** et al., *Lifetime measurements in Cr and V isotopes using Centroid Shift Method and DSAM*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **50** (2005), p. 238.
- 39 **A. Y. Deo**, S. K. Tandel, S. B. Patel et al., *Shears mechanism in silver isotopes*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **50** (2005), p. 250.
- 40 **A. Y. Deo**, S. B. Patel, A. K. Singh, H. Hübel, A. Bracco et al., *High spin states in ^{123}Ba* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **47B** (2004), p. 134.
- 41 **A. Y. Deo**, S. K. Tandel, S. B. Patel et al., *Transition strengths in highly deformed band in ^{113}Sb* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **47B** (2004), p. 136.
- 42 **A. Y. Deo**, S. K. Tandel, S. B. Patel et al., *Investigation of the shears mechanism in ^{112}Sb* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **46B** (2003), p. 150.
- 43 S. K. Tandel, S. K. Kore, S. B. Patel, **A. Y. Deo** et al., *Shape evolution in ^{85}Zr* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **44B** (2001), p. 58.
- 44 **A. Y. Deo**, S. K. Tandel, S. B. Patel et al., *High spin study of ^{42}Sc* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **44B** (2001), p. 130.

Talks

1. *Lifetime and Gamma-ray analysis using ROOT. (Invited)*
Online School on “ROOT based Analysis”, IUAC, New Delhi; March 2022.
2. *Fast Timing Technique for Gamma-Ray Spectroscopy. (Invited)*
Online School on “Nuclear Structure using Gamma-Ray Spectroscopy”, IUAC, New Delhi; September 2021.
3. *Online Lectures on “ROOT for Gamma-Ray Spectroscopy”.*
A self initiative during COVID-19; June 2020.
4. *Evolution of nuclear structure in francium isotopes. (Invited)*
Workshop on “Results from Recent INGA campaigns and Future Perspectives”, IUAC, New Delhi; September 2019.
5. *“Alternating-parity bands in ^{216}Fr ”.*
International workshop on “Frontiers in Gamma Ray Spectroscopy”, TIFR, Mumbai; March 2018.
6. *Evolution of octupole collectivity in trans-lead region. (Invited)*
DAE-BRNS Symposium on Nuclear Physics, Thapar University, Patiala; December 2017.
7. *Connecting gaps between spherical and deformed nuclei. (Invited)*
INGA User Workshop, IUAC, New Delhi; September 2017.
8. *Evidence of decreasing collectivity in ^{103}Pd .*
The 5th International Conference on “Collective Motion in Nuclei under Extreme Conditions”, Krakow, Poland; September 2015.
9. *Exploring sub-picosecond regime in nuclei.*

IPA Seminar, IIT Roorkee, Roorkee; March 2014

10. *Spectroscopy around doubly-magic ^{208}Pb : Exploring unique proton $i_{13/2}$ orbital.* **(Invited)**
INGA User Workshop, TIFR, Mumbai; March 2013.
11. *Fission characteristics of the ^{224}Th compound nucleus.*
DAE-BRNS Symposium on Nuclear Physics, Delhi University, New Delhi; December 2012.
12. *Performance of the X-ARRAY at ANL.*
2011 Fall Meeting of the APS Division of Nuclear Physics, East Lansing, Michigan, USA;
October 2011.
13. *Structures of ^{201}Po and ^{205}Rn from β -decay studies.* **(Invited)**
International workshop on “Frontiers in Gamma Ray Spectroscopy”, TIFR, Mumbai; March 2009.
14. *Spectroscopy of Indium isotopes: understanding evolution of shears mechanism.*
50th Anniversary Symposium on “Nuclear Sizes and Shapes”, University of Surrey, Guildford, UK; June 2008.

Research Supervision

A Ph.D.

S. No.	Thesis Title	Year Awarded	Name of the Scholar
1.	Nuclear structure investigations in transitional region around ^{208}Pb	2024	Madhu
2.	Gamma Spectroscopy of neutron-deficient nuclei around doubly-magic ^{208}Pb	2023	Khamosh Yadav
3.	Gamma Spectroscopy of Trans-Lead Nuclei	2018	Pragati
4.	In-beam Gamma-ray Spectroscopy of Nuclei around ^{208}Pb	Ongoing	Dhananjaya Sahoo
5.	To be decided	Ongoing	Vijay Bangari

B M.Sc.

S. No.	Thesis Title	Year	Name of the Student
1.	Deep in-elastic reactions to explore nuclear structure near ^{208}Pb	2025	Gunjan Gaur
2.	Gamma-spectroscopy and fast-timing technique	2025	Careen Alma Lakadong
3.	Experimental Investigation of Nuclear Isomers	2020	Sanjeev Kumar Thakur
4.	Conversion electron spectrometer simulation using GEANT ₄	2019	Shivam Trivedi
5.	A detailed study $^{11}\text{B} + ^{208}\text{Pb} \rightarrow ^{219}\text{Fr}^*$	2018	Kanishka Kumar Singh
6.	Discrete Gamma-Spectroscopy Techniques	2017	Khamosh Yadav
7.	Gamma Spectroscopy using Incomplete Fusion Reactions	2017	Ankit Mittal
8.	Yield of Residual Nuclei formed in $^{35}\text{Cl} + ^{124}\text{Sn}$ Reaction using Decay Studies	2016	Rupam Mandal
9.	Yield of Nuclei in Heavy-Ion Induced Reaction	2016	Darmendra Bagariya
10.	Characterization of the Cerium Bromide Detector	2015	Priya
11.	Investigating Octupole Deformation by using Gamma-ray Spectroscopy	2014	Renu Gill
12.	Population of Nuclei via ^9Be induced Binary Reactions	2013	Arjun K. R.

Research Projects

S. No.	Title	Funding Agency	Financial Outlay	Year of Start & Period	Status
1.	Nuclear Structure and Evolution of Collectivity beyond ^{208}Pb	DST–SERB	₹ 42 Lacs	2020; 3 years	Completed
2.	Gamma Spectroscopy using incomplete Fusion Reactions	SRIC, IITR	₹ 9 Lacs	2012; 3 years	Completed

Visits to Research Institutions

As a part of various research collaborations, I have visited several institutions where I played a major role in setting up and/or performing experiments.

- Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering (IFIN-HH), Romania
- Extreme Light Infrastructure - Nuclear Physics (ELI-NP), Roamania
- Institute of Nuclear Physics, Polish Academy of Sciences, Kracow, Poland
- Argonne National Laboratory, Chicago, USA
- ISOLDE CERN, Geneva, Switzerland
- University of Jyväskylä, Jyväskylä, Finland
- GSI, Darmstadt, Germany
- Legnaro National Laboratory (LNL), Legnaro, Italy
- Inter University Accelerator Centre (IUAC), New Delhi, India
- Tata Institute of Fundamental Research (TIFR), Mumbai, India

Teaching Engagements

- Atomic and Nuclear Physics
- Thermal and Statistical Physics
- Electromagnetic Theory
- Nuclear Physics and Applications
- Mechanics and Relativity
- Electricity and Magnetism
- Reactor Physics
- Physics - I

Administrative Positions

- Member, Department Research Committee (DRC), Dec. 2024 -
- M.Sc. Coordinator, Oct. 2023 -
- Member, PG Curriculum and Program Revision Committee, Jul. 2023 -
- Member, Department Faculty Search Committee, Year 2022
- Member, Department Research Committee (DRC), Oct. 2020 - Nov. 2022
- Member, Department Purchase Committee (DPC), Aug. 2021 - Jul. 2022
- Member, Department Academic Program Committee (DAPC), Jun. 2017 - May 2019
- Member, Department Administrative Committee (DAC), May 2016 - Mar. 2019
- Member, Department Research Committee (DRC), May 2014 - Jul. 2015
- Examination Coordinator, Autumn 2020
- O.C., Nuclear Physics Laboratory, Jun. 2016 - 2022
- Deputy O.C., Nuclear Physics Laboratory, Jul. 2014 - May 2016
- Faculty Advisor, Physics Association, Years 2014, 2015