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## Employment History

- 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

- 2000 – 2006 📌 **Ph.D., University of Mumbai.**  
Thesis title: *Structure of light, neutron-deficient nuclei.*
- 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 Madhu, A. Y. Deo, K. Yadav, D. Sahoo, Y. Y. Wang, Y. K. Wang, J. Meng, et al., *Coexisting single-particle excitations and octupole correlations in the transitional nucleus  $^{217}\text{Ra}$* , [Phys. Rev. C \*\*108\*\*, 014309 \(2023\)](#).
- 2 K. Yadav, A. Y. Deo, Madhu, D. Sahoo, P. C. Srivastava, S. Suman, S. K. Tandel, et al., *High-spin spectroscopy in  $^{207}\text{At}$ : Evidence of a  $29/2^+$  isomeric state*, [Phys. Rev. C \*\*107\*\*, 054303 \(2023\)](#).

- 3 Madhu, K. Yadav, **A. Y. Deo**, Pragati, P. C. Srivastava, S. K. Tandel, S. G. Wahid, et al., *Evolution of nuclear structure through isomerism in  $^{216}\text{Fr}$* , *Phys. Rev. C* **105**, 034308 (2022).
- 4 K. Yadav, **A. Y. Deo**, Madhu, Pragati, P. C. Srivastava, S. K. Tandel, S. G. Wahid, et al., *Level structure in the transitional nucleus  $^{215}\text{Fr}$* , *Phys. Rev. C* **105**, 034307 (2022).
- 5 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  $^{72}\text{Br}$* , *Phys. Rev. C* **105**, 014323 (2022).
- 6 **A. Y. Deo**, K. Yadav, Madhu, S. K. Tandel, and R. Kumar, *Antimagnetic rotation and role of gradual neutron alignment in  $^{103}\text{Pd}$* , *Eur. Phys. J. A* **57**, 126 (2021).
- 7 S. G. Wahid, S. K. Tandel, S. Suman, M. Hemalatha, A. Patel, P. Roy, **A. Y. Deo**, et al., *Metastable states from multinucleon excitations in  $^{202}\text{Tl}$  and  $^{203}\text{Pb}$* , *Phys. Rev. C* **102**, 024329 (2020).
- 8 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).
- 9 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  $^{216}\text{Fr}$* , *Phys. Rev. C* **97**, 044309 (2018).
- 10 S. Biswas, R. Palit, J. Sethi, S. Saha, A. Raghav, · · ·, **A. Y. Deo**, et al., *High-spin states in  $^{133}\text{Cs}$  and the shell model description*, *Phys. Rev. C* **95**, 064320 (2017).
- 11 Pragati, **A. Y. Deo**, Z. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt, et al., *Decay of the  $N = 126$ ,  $^{213}\text{Fr}$  nucleus*, *Phys. Rev. C* **94**, 064316 (2016).
- 12 A. J. Mitchell, C. J. Lister, E. A. McCutchan, M. Albers, A. D. Ayangeakaa, · · ·, **A. Y. Deo**, et al.,  *$\gamma$ -soft  $^{146}\text{Ba}$  and the role of nonaxial shapes at  $N \approx 90$* , *Phys. Rev. C* **93**, 014306 (2016).
- 13 A. Akber, M. W. Reed, P. M. Walker, Y. A. Litvinov, G. J. Lane, · · ·, **A. Y. Deo**, et al., *Increased isomeric lifetime of hydrogen-like  $^{192m}\text{Os}$* , *Phys. Rev. C* **91**, 031301 (2015).
- 14 A. Mitchell, P. Bertone, B. DiGiovine, C. Lister, M. 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).
- 15 A. Gottardo, J. J. Valiente-Dobón, G. Benzoni, S. Lunardi, A. Gadea, · · ·, **A. Y. Deo**, et al., *Isomeric decay spectroscopy of the  $^{217}\text{Bi}$  isotope*, *Phys. Rev. C* **90**, 034317 (2014).
- 16 S. Hota, P. Chowdhury, T. Khoo, M. Carpenter, R. Janssens, · · ·, **A. Y. Deo**, et al.,  *$N = 151$   $\text{Pu}$ ,  $\text{Cm}$  and  $\text{Cf}$  nuclei under rotational stress: Role of higher-order deformations*, *Phys. Lett. B* **739**, 13–18 (2014).
- 17 A. I. Morales, G. Benzoni, A. Gottardo, J. J. Valiente-Dobón, N. Blasi, · · ·, **A. Y. Deo**, et al.,  *$\beta$ -decay studies of neutron-rich  $\text{Tl}$ ,  $\text{Pb}$ , and  $\text{Bi}$  isotopes*, *Phys. Rev. C* **89**, 014324 (2014).
- 18 A. Denis Bacelar, A. Bruce, Z. 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).
- 19 A. Gottardo, J. Valiente-Dobón, G. Benzoni, A. Gadea, S. Lunardi, · · ·, **A. Y. Deo**, et al., *New  $\mu\text{s}$  isomers in the neutron-rich  $^{210}\text{Hg}$  nucleus*, *Physics Letters B* **725**, 292–296 (2013).
- 20 D. Shubina, R. B. Cakirli, Y. 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).
- 21 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  $^{221}\text{Th}$* , *Phys. Rev. C* **87**, 034319 (2013).

- 22 N. Al-Dahan, P. H. Regan, Z. Podolyák, P. M. Walker, N. Alkhomashi, · · ·, **A. Y. Deo**, et al., *Multiple  $\beta^-$  decaying states in  $^{194}\text{Re}$ : Shape evolution in neutron-rich osmium isotopes*, *Phys. Rev. C* **85**, 034301 (2012).
- 23 G. Benzoni, A. Morales, 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).
- 24 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).
- 25 M. W. Reed, P. M. Walker, I. J. Cullen, Y. 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).
- 26 C. R. Triguero, A. M. Bruce, T. Eronen, I. D. Moore, M. Bowry, A. M. D. Bacelar, **A. Y. Deo**, et al., *Trap-assisted separation of nuclear states for gamma-ray spectroscopy: the example of  $^{100}\text{Nb}$* , *Journal of Physics G: Nuclear and Particle Physics* **39**, 015101 (2011).
- 27 T. Trivedi, R. Palit, J. Sethi, S. Saha, S. Kumar, · · ·, **A. Y. Deo**, et al., *Small quadrupole deformation for the dipole bands in  $^{112}\text{In}$* , *Phys. Rev. C* **85**, 014327 (2012).
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- 29 D. DiJulio, J. Cederkall, C. Fahlander, A. Ekström, P. Golubev, · · ·, **A. Y. Deo**, et al., *Electromagnetic properties of vibrational bands in  $^{170}\text{Er}$* , *Eur. Phys. J. A* **47**, 25 (2011).
- 30 **A. Y. Deo**, Z. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt, L. M. Fraile, et al., *Structures of  $^{201}\text{Po}$  and  $^{205}\text{Rn}$  from  $EC/\beta^+$ –decay studies*, *Phys. Rev. C* **81**, 024322 (2010).
- 31 M. W. Reed, I. J. Cullen, P. M. Walker, Y. 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).
- 32 R. Palit, **A. Y. Deo**, Z. Naik, S. Sihotra, S. Kumar, P. Joshi, D. Mehta, and H. Jain, *Structure of degenerate dipole bands in  $^{106}\text{In}$  and investigation of similar structure in neighbouring odd-odd isotopes*, *Nuclear Physics A* **834**, 81c–83c (2010).
- 33 S. Sihotra, Z. Naik, R. Palit, **A. Y. Deo**, S. Kumar, P. K. Joshi, D. Mehta, and N. Singh, *Level structures in the  $^{107}\text{In}$  nucleus and their microscopic description*, *Eur. Phys. J. A* **43**, 45–53 (2010).
- 34 N. Al-Dahan, Z. Podolyák, P. H. Regan, M. Górska, H. Grawe, · · ·, **A. Y. Deo**, et al., *Nuclear structure “southeast” of  $^{208}\text{Pb}$ : Isomeric states in  $^{208}\text{Hg}$  and  $^{209}\text{Tl}$* , *Phys. Rev. C* **80**, 061302 (2009).
- 35 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).
- 36 **A. Y. Deo**, R. Palit, Z. Naik, S. Sihotra, S. Kumar, P. K. Joshi, I. Mazumdar, et al., *Structure of dipole bands in  $^{106}\text{In}$* , *Phys. Rev. C* **79**, 067304 (2009).
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- 38 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  $^{139}\text{Nd}$* , *Phys. Rev. C* **76**, 014306 (2007).
- 39 **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).

- 40 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  $^{112}\text{Sb}$* , *Phys. Rev. C* **71**, 017303 (2005).

## Conference Proceedings

- 1 Khamosh Yadav, A. Y. Deo, Madhu, Dhananjaya Sahoo, P. C. Srivastava, Saket Suman, S. K. Tandel et al., *High-spin states and isomers in  $^{207}\text{At}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **66** (2022), p. 54.
- 2 Madhu, A. Y. Deo, Khamosh Yadav, Saket Suman, S. K. Tandel, A. Sharma, I. Ahmed et al., *Evidence of parity-doublet structures in  $^{217}\text{Ra}$  [Best Poster Award]*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **66** (2022), p. 118.
- 3 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.
- 4 Madhu, A. Y. Deo, Pragati, Khamosh Yadav, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty et al., *Search for non-natural parity states in  $^{213}\text{At}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **64** (2019), p. 210.
- 5 Khamosh Yadav, A. Y. Deo, Pragati, Madhu, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, et al., *Revisiting isomeric states in  $^{215}\text{Fr}$* , in Proc. of the DAE Symp. on Nucl. Phys. (2019), p. 206.
- 6 Kaushik Katre, K. Suryanarayana, A. Tejaswi, M. Kumar Raju, M. Ratna Raju, · · · A. Y. Deo et al., *Spin assignment of a dipole band in  $^{104}\text{Ag}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **64** (2019), p. 192.
- 7 Khamosh Yadav, A. Y. Deo, Pragati, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai et al., *Evidence of high-spin isomers in  $^{216}\text{Fr}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 182.
- 8 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  $^{202}\text{Tl}$  and  $^{203}\text{Pb}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 228.
- 9 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  $^{201}\text{Tl}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 238.
- 10 K. Rojeeta Devi, Suresh Kumar, R. Palit, Neelam, Neeraj Kumar, · · · A. Y. Deo et al., *Transition probability ratios of dipole band in  $^{129}\text{La}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 316.
- 11 D. Choudhury, R. Goswami, S.S. Ghugre, R Raut, A. Y. Deo, A.K. Sinha, *Octupole Correlations in  $^{106}\text{Cd}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **63** (2018), p. 322.
- 12 Pragati, A. Y. Deo, Khamosh Yadav, S. K. Tandel, S. S. Bhattacharjee, S. Chakraborty, S. Rai et al., *In-beam spectroscopy of  $^{215}\text{Fr}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 164.
- 13 S. G. Wahid, S. K. Tandel, A. Patel, S. Suman, P. Roy, M. Hemalatha, A. Y. Deo et al., *High spin isomer in  $^{202}\text{Tl}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 298.
- 14 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  $^{201}\text{Tl}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **62** (2017), p. 300.
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- 16 A. Y. Deo, Pragati, Zs. Podolyák, P. M. Walker, A. Algora, B. Rubio, J. Agramunt et al., *The decay of  $N = 126$ ,  $^{213}\text{Fr}$  nucleus*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **60** (2015), p. 70.
- 17 K. Suryanarayana, A. Tejaswi, M. Kumar Raju, M. Ratna Raju, D. Vijaya Lakshmi, · · · A. Y. Deo et al., *Re-examination of Dipole Band in  $^{104}\text{Ag}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **59** (2014), p. 292.
- 18 J. Sethi, R. Palit, S. Saha, D. Choudhury, T. Trivedi, · · · A. Y. Deo et al., *First experimental signature of two-shears mechanism in  $^{112}\text{In}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **59** (2014), p. 118.

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- 20 **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  $^{224}\text{Th}$  compound nucleus*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **57** (2012), p. 222.
- 21 **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).
- 22 T. Trivedi, R. Palit, J. Sethi, S. Saha, Z. Naik, . . . **A. Y. Deo** et al., *Small axially symmetric deformation for the dipole band in  $^{112}\text{In}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **56** (2011), p. 226.
- 23 H. Pai, G. Mukherjee, S. Bhattacharyya, T. Bhattacharjee, R. Palit, **A. Y. Deo**, P.K. Joshi et al., *High spin spectroscopy of  $^{134}\text{Cs}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **54** (2009), p. 88.
- 24 A. Raghav, R. Palit, Z. Naik, S. Sharma, **A. Y. Deo**, V.V. Parkar, B. S. Naidu et al., *High spin structure of  $^{133}\text{Cs}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **54** (2009), p. 86.
- 25 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  $^{238}\text{U}$* , in AIP Conference Proceedings, Vol. 1090 (2008), p. 145.
- 26 **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 50<sup>th</sup> Anniversary Symposium on Nuclear Sizes and Shapes (2008).
- 27 Sudatta Ray, I. Ray, Ritesh Kshetri, R. Raut, S. Ganguly, . . . **A. Y. Deo** et al., *Spectroscopy of  $^{37}\text{Ar}$ ,  $^{36}\text{Cl}$  and the role of *pf* orbitals*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 353.
- 28 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  $^{133}\text{Ce}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 323.
- 29 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.
- 30 S. Sihotra, Z. Naik, R. Palit, **A. Y. Deo**, S. Kumar, P. K. Joshi, D. Meheta and N. Singh, *Structures of Dipole bands of  $^{107}\text{In}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **53** (2008), p. 235.
- 31 Suresh Kumar, A. K. Jain, Alpana Goel, S. S. Malik, R. Palit, . . . **A. Y. Deo** et al., *The structure of  $^{136}\text{Ba}$  using HI reaction*, in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 292.
- 32 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.
- 33 Z. Naik, R. Palit, S. Sihotra, **A. Y. Deo**, D. Mehta, and C. R. Praharaaj, *Microscopic explanation of observed band structures of  $^{131}\text{Cs}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 199.
- 34 **A. Y. Deo**, R. Palit, S. Sihotra, Z. Naik, S. Kumar et al., *High spin states in  $^{106}\text{In}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **52** (2007), p. 193.
- 35 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.
- 36 **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.
- 37 **A. Y. Deo**, S. B. Patel, A. K. Singh, H. Hübel, A. Bracco et al., *High spin states in  $^{123}\text{Ba}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **47B** (2004), p. 134.

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- 40 S. K. Tandel, S. K. Kore, S. B. Patel, A. Y. Deo et al., *Shape evolution in  $^{85}\text{Zr}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **44B** (2001), p. 58.
- 41 A. Y. Deo, S. K. Tandel, S. B. Patel et al., *High spin study of  $^{42}\text{Sc}$* , in Proc. of the DAE Symp. on Nucl. Phys. Vol. **44B** (2001), p. 130.

## Talks

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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  $^{216}\text{Fr}$ ".*  
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  $^{103}\text{Pd}$ .*  
The 5<sup>th</sup> 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  $^{208}\text{Pb}$ : Exploring unique proton  $i_{13/2}$  orbital. (Invited)*  
INGA User Workshop, TIFR, Mumbai; March 2013.
11. *Fission characteristics of the  $^{224}\text{Th}$  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  $^{201}\text{Po}$  and  $^{205}\text{Rn}$  from  $\beta$ -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.*  
50<sup>th</sup> 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 $^{208}\text{Pb}$	2024	Madhu
2.	Gamma Spectroscopy of neutron-deficient nuclei around doubly-magic $^{208}\text{Pb}$	2023	Khamosh Yadav
3.	Gamma Spectroscopy of Trans-Lead Nuclei	2018	Pragati
4.	In-beam Gamma-ray Spectroscopy of Nuclei around $^{208}\text{Pb}$	Ongoing	Dhananjaya Sahoo

### B M.Sc.

S. No.	Thesis Title	Year	Name of the Student
1.	Experimental Investigation of Nuclear Isomers	2020	Sanjeev Kumar Thakur
2.	Conversion electron spectrometer simulation using GEANT4	2019	Shivam Trivedi
3.	A detailed study $^{11}\text{B} + ^{208}\text{Pb} \rightarrow ^{219}\text{Fr}^*$	2018	Kanishka Kumar Singh
4.	Discrete Gamma-Spectroscopy Techniques	2017	Khamosh Yadav
5.	Gamma Spectroscopy using Incomplete Fusion Reactions	2017	Ankit Mittal
6.	Yield of Residual Nuclei formed in $^{35}\text{Cl} + ^{124}\text{Sn}$ Reaction using Decay Studies	2016	Rupam Mandal
7.	Yield of Nuclei in Heavy-Ion Induced Reaction.	2016	Darmendra Bagariya
8.	Characterization of the Cerium Bromide Detector	2015	Priya
9.	Investigating Octupole Deformation by using Gamma-ray Spectroscopy	2014	Renu Gill
10.	Population of Nuclei via $^9\text{Be}$ 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 $^{208}\text{Pb}$	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

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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), Romania
- Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, 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

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

## Administrative Positions

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- 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