



भारतीय प्रौद्योगिकी संस्थान रुड़की

Indian Institute of Technology Roorkee

Dr. Praveen C Srivastava

Praveen C Srivastava
Associate Professor @ Department of Physics
IIT-Roorkee, India
Email: praveen.srivastava@ph.iitr.ac.in
Phone: +91-1332285598
Web page: [https://www.iitr.ac.in/ PH/pcsrifph](https://www.iitr.ac.in/PH/pcsrifph)



Area of Interest

Theoretical Nuclear Physics: Shell Model, Ab-initio Many-Body Theory: No Core Shell Model, Three body forces. Beta decay, Forbidden beta decay, Electron capture rates, Double beta decay. Quantum Computing: circuits and algorithms.

Professional Background

From	To	Designation	Organisation
2020	Till date	Associate Professor	Indian Institute of Technology, Roorkee, India
2012	2020	Assistant Professor	Indian Institute of Technology, Roorkee, India
2011	2012	Post-Doctoral Fellow	Instituto de Ciencias Nucleares - UNAM, Mexico
2009	2011	Post-Doctoral Fellow	Physical Research Laboratory, Ahmedabad
2008	2009	Visiting Fellow	Grand Accélérateur National d'Ions Lourds - GANIL, France

Educational Details

Degree	Subject	University	Year
Ph.D.	Nuclear Physics	University of Allahabad (Part of thesis work @GANIL, France : Indo-French Sandwich PhD Programme)	2010

Administrative Background

From	To	Designation	Organisation
2023	Till date	Member	Department Administrative Committee
2022	Till date	OC Computer Lab	Physics Department
2017	2022	Member	DAPC
2016	2019	Member	Department Administrative Committee
2017	2019	OC Time Table	Physics Department
2017	2018	Convener (Reports and Website Committee)	Physics Department
2018	2020	Deputy O.C. at Properties of Matter (Int. M.Sc. Lab)	Physics Department
2014	2015	Examination Superintendent	Physics Department
2014	2016	O.C Properties of Matter (Int. M.Sc. Lab)	Physics Department
2014	2016	Member	Department Research Committee
2013	2014	Faculty Advisor	Physics Association

Research Grants:

[A] Ongoing:

S.No.	Title of Project	Sponsoring Agency	Amount	PI	Start Date	End Date
1.	Shell model study for allowed and forbidden beta decays	SERB-DST (Core Grant)	25.5 Lakhs	P.C. Srivastava (PI only)	30th May, 2023	29th May, 2026

[B] Completed:

S.No.	Title of Project	Sponsoring Agency	Amount	PI	Start Date	End Date
2.	No Core Shell Model Study For Lighter Neutron Rich Nuclei	SERB-DST (Core Grant)	29 Lakhs	P.C. Srivastava (PI only)	30th Dec, 2019	29th May, 2022
3.	To study the nuclear structure properties with high end computational facility	FIG-SRIC (MHRD)	10 Lakhs	P.C. Srivastava (PI only)	27th May, 2013	26th May, 2016

Details of Doctoral theses supervised

[A] Awarded:

S.No.	Title of Thesis	Year	Name of Scholar	Present Position
1.	Nuclei towards Drip- Line: A shell model study	2017	Vikas Kumar	Assistant Professor at Physics Department, BHU- Varanasi, India.
2.	Ab initio No Core Shell model for Lighter Nuclei	2019	Archana Saxena	Post Doc at IIT-Roorkee
3.	Role of isospin in heavy and neutron- rich nuclei (with Prof. A.K. Jain)	2019	Swati	Post Doc at Shanghai Jiao Tong University
4.	Shell model study of allowed and forbidden beta decays	2021	Anil Kumar	Post Doc at University of Tsukuba, Japan
5.	Shell model study for neutron-rich nuclei	2023	Bharti Bhoy	Post Doc at University of Surrey, UK
6.	Ab initio no core shell model study of lower mass nuclei	2023	Priyanka Choudhary	Post Doc at Royal Institute of Technology (KTH), Stockholm, Sweden

[B] In Progress:

S.No.	Title of Thesis	Registration Year	Name of Scholar	Present Position
7.	Ab-initio study of nuclear structure	2020	Chandan Sarma	
8.	Shell model study of beta decays and electron capture rates	2020	Shweta Sharma	
9.	Study of nuclear structure using ab initio theory	2020	Subhrajit Sahoo	
10.	Shell model study of nuclear structure and isomers	2020	Deepak Patel	
11.	Shell model study of collectivity and isomeric states around 208Pb	2021	Sakshi Shukla	Faculty at Govt. Polytechnique, Amroha

Teaching Engagements:

Title of Course	Course Code	Class Name	Semester
Quantum Mechanics-I	PHN-503	M.Sc. Physics (2023)	Autumn
Nuclear and Particle Physics	PHN-507	M.Sc. Physics (2022)	Spring
Quantum Mechanics-I	PHN-503	M.Sc. Physics (2022)	Autumn
Nuclear and Particle Physics	PHN-507	M.Sc. Physics (2021)	Spring
Quantum Mechanics and Statistical Mechanics	PHN-006	B.Tech. (CS) (2020)	Spring
Advanced Nuclear Physics	PHN-607	M.Sc. Physics (2017) and (2016)	Autumn
Numerical Analysis and Programming	PHN- 701	M.Tech. (SSEM + Photonics) (2019)	Autumn
Quantum Physics	PHN-211	B.Tech. (Engg. Phys.) + Int. M.Sc. II (2019)	Autumn
Mechanics and Relativity	PHN-104	B.Tech. (Engg. Phys.) + Int. M.Sc. II (2019) and (2020)	Autumn
Electromagnetic Theory	PHN- 003	B.Tech. (Electrical) (2015)	Autumn
Mechanics	PHN-001	B.Tech. (Civil) (2014) and (2013)	Autumn
Nuclear Physics and its Applications	PHN-308	Int. M.Sc. (2015) and (2014)	Spring
Physics	PHN-101	B.Tech. Electrical Engg.-2013	Spring
Nuclear Physics	PHN-786	Pre PhD (2013)	Spring

Research Collaborative Visit:

S.No.	Institute
1.	University of Tsukuba, Japan (Center for Computational Sciences) 2023-06-01 Research Collaborative work with Prof. Noritaka Shimizu (one month).
2.	Cape Town, South Africa: iThemba Nuclear Physics Lab 2022-09-09 Invited Talk at INPC-2022 and collaborative discussions (one week).
3.	GSI, Germany 019-06-01 Research Collaborative work with Prof. G. Martinez Pinedo (one month).
4.	TRIUMF, Vancouver, BC-Canada 2018-06-01 Research Collaborative work with Prof. Petr Navratil (one month)
5.	Saitama University, Saitama, Japan 2017-06-01 Research Collaborative work with Prof. N. Yoshinaga (one month)
6.	TRIUMF, Vancouver, BC-Canada 2016-06-01 Research Collaborative work with Prof. Petr Navratil (one month)
7.	Mathematical Physics Division, Lund University, Sweden 2015-06-01 Research Collaborative work with Prof. Sven Aberg (one month)
8.	Department of Physics, Jyväskylä, University, Finland 2014-06-01 Research Collaborative work with Prof. Jouni Suhonen (one month)
9.	Aizu University, Japan 2011-08-01 Research Collaborative work with Prof. Michio Honma (one month)
10.	JINR, Dubna, Russia 2006-07-01 Research Collaborative work with Prof. V.A. Zagrebov (one month)

Invited Talks:

S.No.	Institute
20.	Tsukuba University, Japan, Ab initio no-core shell model study of lighter nuclei, 7th June, 2023.
19.	IUAC, New Delhi, Ab initio study of structure and observables for p and sd shell nuclei, in workshop entitled "Indian National Gamma Array (INGA): Recent Results and Ancillary Devices" at IUAC from 17 - 19 April, 2023
18.	Cape Town-South Africa, Shell model study of allowed and forbidden beta decays in the different mass regions. http://inpc2022.org/wp-content/uploads/2022/09/INCP-Programme-Full20220910-2.pdf
17.	KTH-Sweden, Ab initio no-core shell model study of lighter nuclei with realistic NN interactions, May-2022. https://indico.cern.ch/event/1120035/contributions/
16.	VECC-Kolkata, NLTM-2022, Shell model studies in nuclear beta decay, 1-3 Feb, 2022. https://events.vecc.gov.in/event/11/
15.	IUAC-New Delhi, Ab initio no-core shell model study for lighter nuclei with realistic NN interactions, June-2021.
14.	GSI-Germany, Ab initio shell-model study of nuclear observables for sd shell nuclei, July-2019.
13.	TRIUMF, Vancouver, BC-Canada, Ab initio results for nuclear observables, June-2018.
12.	Computational nuclear structure and reaction school (CNSR-2018), Kolkata, Jan 2-22, 2018. Series of lectures on shell model. https://indico.cern.ch/event/671249/overview
11.	TIFR, Mumbai, Nuclear observables, March-2018.
10.	Saitama, Japan, Shell model results of nuclear structure properties, June-2017.
9.	TRIUMF, Vancouver, BC-Canada, AShell model results for beta decay, June-2016.
8.	Invited talk at DAE-Symposium, Kolkata, Computing atomic nuclei, Dec-2016.
7.	Bharathiar University, Coimbatore, TN, India, Series of lectures on ab initio calculations, SERC2017.
6.	Kashmir University, Srinagar, series of lectures on Shell-Model, SERC-2016.
5.	IIT-Roorkee, series of lectures on shell model effective interactions, SERC-2015.
4.	VECC-Kolkata, Nuclear structure of neutron-rich nuclei towards N=50, 2014.
3.	Jammu-university, Excitation across Z=28 gap for heavy As isotopes, 2014.
2.	IUAC-New-Delhi, Large scale shell model calculations with a high-performance computing facility, 2013.
1.	TIFR-Mumbai, Large scale shell model calculations and its interpretations for recent INGA results, SERC-2013.

List of Publications:

109. **Nuclear Physics A 1039, 122742 (2023)**
D. Patel, P.C. Srivastava, N. Shimizu
Systematic shell-model study of $^{98-130}\text{Cd}$ isotopes and 8^+ isomeric states
doi: <https://doi.org/10.1016/j.nuclphysa.2023.122742>
108. **European Physical Journal A: Hadrons and Nuclei 59, 97 (2023)**
P. Choudhary, P.C. Srivastava
Study of S, Cl and Ar isotopes with $N \geq Z$ using microscopic effective sd-shell interactions
doi: <https://doi.org/10.1140/epja/s10050-023-01013-8>
107. **Phys. Rev. C 107, 014309 (2023)**
P. Choudhary, P.C. Srivastava, M. Gennari, P. Navratil
Ab initio no-core shell model description of $^{10-14}\text{C}$ isotopes
doi: <https://doi.org/10.1103/PhysRevC.107.014309>
106. **Journal of Physics G: Nuclear and Particle Physics 50, 045105 (2023)**
C. Sarma, P.C. Srivastava
Ab initio no-core shell model study of $^{18-24}\text{Ne}$ isotopes
doi: <https://dx.doi.org/10.1088/1361-6471/acb962>
105. **Journal of Physics G: Nuclear and Particle Physics 50, 065101 (2023)**
H. Muther, P.C. Srivastava
Quasi-Deuterons in Light Nuclei
doi: <https://doi.org/10.1088/1361-6471/acca36>
104. **Nuclear Physics A 1033, 122629 (2023)**
P. Choudhary, P.C. Srivastava
Nuclear structure properties of Si and P isotopes with the microscopic effective interactions
doi: <https://doi.org/10.1016/j.nuclphysa.2023.122629>
103. **Nuclear Physics A 1032, 122618 (2023)**
S. Sahoo, P.C. Srivastava, T. Suzuki
Study of structure and radii for $^{20-31}\text{Na}$ isotopes using microscopic interactions
doi: <https://doi.org/10.1016/j.nuclphysa.2023.122618>
102. **Nuclear Physics A 1031, 122596 (2023)**
S. Sharma, P.C. Srivastava, A. Kumar
Forbidden beta decay properties of $^{135,137}\text{Te}$ using shell-model
doi: <https://doi.org/10.1016/j.nuclphysa.2022.122596>
101. **Physical Review C 107, 054303 (2023)**
K. Yadav et al, P.C. Srivastava
High-spin spectroscopy in ^{207}At : Evidence of a $29/2^+$ isomeric state
doi: <https://doi.org/10.1103/PhysRevC.107.054303>
100. **Physical Review C 107, 024312 (2023)**
S. Chatterjee et al, P.C. Srivastava
Single-particle configurations of low- and medium-spin states in ^{63}Cu
doi: <https://doi.org/10.1103/PhysRevC.107.024312>
99. **Nuclear Physics A 1029, 122565 (2023)**
P. Choudhary, P.C. Srivastava
Ab initio no-core shell model study of neutron-rich $^{18,19,20}\text{C}$ isotopes
doi: <https://doi.org/10.1016/j.nuclphysa.2022.122565>
98. **Journal of Physics: Conf. Ser. 2586, 012026 (2023)**
P.C. Srivastava, S. Sharma, A. Kumar, P. Choudhary
Shell model study of first-forbidden beta decay around ^{208}Pb
doi: <https://10.1088/1742-6596/2586/1/012026>

97. **Physical Review C** 106, 024333 (2022)
S. Sharma, P.C. Srivastava, A. Kumar, and T. Suzuki
Shell-model description for the properties of the forbidden β - decay in the region “north-east” of ^{208}Pb
doi: <https://doi.org/10.1103/PhysRevC.106.024333>
96. **Journal of Physics G: Nuclear and Particle Physics** 49, 085101 (2022)
B. Bhoy, P.C. Srivastava
Systematic shell model study for $N = 82$ and $N = 126$ isotones and nuclear isomers
doi: <https://doi.org/10.1088/1361-6471/ac76da>
95. **Physics Letters B** 832, 137262 (2022)
S.G. Wahid et al., P.C. Srivastava
Emergence of an island of extreme nuclear isomerism at high excitation near ^{208}Pb
doi: <https://doi.org/10.1016/j.physletb.2022.137262>
94. **Nuclear Physics A** 1017, 122344 (2022)
V. Kumar, A. Kumar, P.C. Srivastava
Shell-model study of GT-strengths corresponding to beta decay of ^{60}Ge and ^{62}Ge
doi: <https://doi.org/10.1016/j.nuclphysa.2021.122344>
93. **Physical Review C** 106, 044329 (2022)
S. Chatterjee et al, P.C. Srivastava
Single-particle configurations of the excited states of ^{203}Po
doi: <https://doi.org/10.1103/PhysRevC.106.044329>
92. **Physical Review C** 105, 044327 (2022)
V. Bothe et al, P.C. Srivastava
Isomers in ^{203}Tl and core excitations built on a five-nucleon-hole structure
doi: <https://doi.org/10.1103/PhysRevC.106.044329>
91. **Universe** 8, 309 (2022)
J. Kasurinen, J. Suhonen, P.C. Srivastava and P. Pirinen
Shell Model Description of Spin-Dependent Elastic and Inelastic WIMP Scattering off ^{119}Sn and ^{121}Sb
doi: <https://doi.org/10.3390/universe8060309>
90. **Physical Review C** 105, 044307 (2022)
P. Dey et al, P.C. Srivastava
Experimental investigation of high-spin states in ^{90}Zr
doi: <https://doi.org/10.1103/PhysRevC.105.044307>
89. **Physical Review C** 105, 034307 (2022)
K. Yadav et al, P.C. Srivastava
Level structure in the transitional nucleus ^{215}Fr
doi: <https://doi.org/10.1103/PhysRevC.105.044307>
88. **Physical Review C** 105, 034308 (2022)
Madhu et al, P.C. Srivastava
Evolution of nuclear structure through isomerism in ^{216}Fr
doi: <https://doi.org/10.1103/PhysRevC.105.034308>
87. **Nuclear Physics A** 1018, 122375 (2022)
P. Ray et al, P.C. Srivastava
Three phonon multiplets in ^{116}Sn
doi: <https://doi.org/10.1016/j.nuclphysa.2021.122375>
86. **European Physical Journal A: Hadrons and Nuclei** 57, 225 (2021)
Anil Kumar, P.C. Srivastava, J. Suhonen
Second-forbidden nonunique beta- decays of $^{59,60}\text{Fe}$: Possible candidates for gA sensitive electron spectral-shape measurements
doi: <https://doi.org/10.1140/epja/s10050-021-00540-6>

85. **Physical Review C** 103, 064325 (2021)
P. Choudhary, Anil Kumar, P.C. Srivastava, T. Suzuki
Structure of 46,47Ca from the beta- decay of 46,47K in the framework of the nuclear shell model
doi: <https://doi.org/10.1103/PhysRevC.103.064325>
84. **Nuclear Physics A** 1014, 122255 (2021)
Anil Kumar, P.C. Srivastava
Shell-model description for the first-forbidden beta- decay of 207Hg into the one-proton-hole nucleus 207Tl
doi: <https://doi.org/10.1016/j.nuclphysa.2021.122255>
83. **Journal of Physics G: Nuclear and Particle Physics** 48, 125103 (2021)
B. Bhoy, P.C. Srivastava
Systematic shell-model study of Rn isotopes with A=207 to 216 and isomeric states
doi: <https://dx.doi.org/10.1088/1361-6471/ac2be0>
82. **Physica Scripta** 96, 065307 (2021)
P.C. Srivastava, L. Zamick
Minimal theory of isomerism -Q.Q and other interactions
doi: <https://dx.doi.org/10.1088/1402-4896/abf306>
81. **Chinese Physics C (IOP)** 45, 084001 (2021)
Jian Zhong et al, P.C. Srivastava
High spin states in 71Ga
doi: <https://dx.doi.org/10.1088/1674-1137/ac0098>
80. **Physical Review C** 102, 044309 (2020)
P.Choudhary, P.C.Srivastava, P.Navratil
Ab initio no-core shell model study of 10-14B isotopes with realistic NN interactions
doi: <https://doi.org/10.1103/PhysRevC.102.044309>
79. **Physical Review C** 101, 064304 (2020)
Anil Kumar, P.C.Srivastava, J.Kostensalo, J.Suhonen
Second-forbidden nonunique β^- decays of 24Na and 36Cl assessed by the nuclear shell model
doi: <https://doi.org/10.1103/PhysRevC.101.064304>
78. **Physical Review C** 102, 064302 (2020)
J.Williams et al. P.C. Srivastava
High-spin structure of the sd shell nuclei 25Na and 22Ne
doi: <https://doi.org/10.1103/PhysRevC.102.064302>
77. **Journal of Physics G: Nuclear and Particle Physics** 47, 055113 (2020)
A.Saxena, P.C.Srivastava
Ab initio no-core shell model study of 18-23O and 18-24F isotopes
doi: <https://dx.doi.org/10.1088/1361-6471/ab6f1d>
76. **Journal of Physics G: Nuclear and Particle Physics** 47, 065105 (2020)
B.Bhoy, P.C.Srivastava, K.Kaneko
Shell model results for 47-58Ca isotopes in the fp, fpg9/2 and fpg9/2d5/2 model spaces
doi: <https://dx.doi.org/10.1088/1361-6471/ab80d4>
75. **Prog.Theor.Exp.Phys.** 2020, 033D01 (2020)
Anil Kumar, P.C .Srivastava, T.Suzuki
Shell model results for nuclear β^- -decay properties of sd-shell nuclei
doi: <https://doi.org/10.1093/ptep/ptaa012>
74. **Acta Physica Polonica B** 51, 961 (2020)
V.Kumar, P.C.Srivastava, A.Kumar
Gamow-Teller Transition Strengths for Selected fp Shell Nuclei
doi: <https://doi.org/10.5506/APhysPolB.51.961>

73. **Nuclear Physics A 1002, 121989 (2020)**
V.Kumar, P.C.Srivastava
Shell model study of high-spin states and band terminations in ^{67}As
doi: <https://doi.org/10.1016/j.nuclphysa.2020.121989>
72. **Physical Review C 101, 014312 (2020)**
Neelam et al., P.C.Srivastava
Intermediate structure and dipole bands in the transitional ^{134}Ba nucleus
doi: <https://doi.org/10.1103/PhysRevC.101.014312>
71. **Journal of Physics G: Nuclear and Particle Physics 47, 095103 (2020)**
D.O'Donnell et al., A.Kumar, P.C.Srivastava
High-spin states of ^{218}Th
doi: <https://dx.doi.org/10.1088/1361-6471/aba16c>
70. **European Journal of Physics Special Topics 229, 2389 (2020)**
R.Sahu, V.K.B.Kota, P.C.Srivastava
Quadrupole properties of the eight $\text{SU}(3)$ algebras in (sdgi) space
doi: <https://doi.org/10.1140/epjst/e2020-000088-4>
69. **Physical Review C 102, 024329 (2020)**
S.G.Wahid et al., P.C.Srivastava
Metastable states from multinucleon excitations in ^{202}Tl and ^{203}Pb
doi: <https://doi.org/10.1103/PhysRevC.102.024329>
68. **Physical Review C 100, 065805 (2019)**
O.S.Kirsebom et al., P.C.Srivastava
Measurement of the $2^+ \rightarrow 0^+$ ground-state transition in the β decay of ^{20}F
doi: <https://doi.org/10.1103/PhysRevC.100.065805>
67. **Physical Review Letters 123, 262701 (2019)**
O.S.Kirsebom et al., P.C.Srivastava
Discovery of an Exceptionally Strong β -Decay Transition of ^{20}F and Implications for the Fate of Intermediate-Mass Stars
doi: <https://doi.org/10.1103/PhysRevLett.123.262701>
66. **Physics Letters B 795, 542 (2019)**
J.Kostensalo, J.Suhonen, C.Giunti, P.C.Srivastava
The gallium anomaly revisited
doi: <https://doi.org/10.1016/j.physletb.2019.06.057>
65. **Physical Review C 99, 014308 (2019)**
Md.S.R.Laskar et al., P.C.Srivastava
g-factor measurement of the 2738 keV isomer in ^{135}La
doi: <https://doi.org/10.1103/PhysRevC.99.014308>
64. **Physical Review C 99, 051301 (Rapid) (2019)**
P.Ruotsalainen et al., A.Saxena, P.C.Srivastava
Isospin symmetry in $B(E2)$ values: Coulomb excitation study of ^{21}Mg
doi: <https://doi.org/10.1103/PhysRevC.99.051301>
63. **Hyperfine Interactions 240, 37 (2019)**
A.Saxena, A.Kumar, V.Kumar, P.C.Srivastava, T.Suzuki
Ab initio description of collectivity for sd shell nuclei
doi: <https://doi.org/10.1007/s10751-019-1582-y>
62. **Prog.Theor.Exp.Phys. 2019, 073D02 (2019)**
A.Saxena, P.C.Srivastava
Ab initio no-core shell model study of neutron-rich nitrogen isotopes
doi: <https://doi.org/10.1093/ptep/ptz073>

61. *Prog.Theor.Exp.Phys.* 2019, 103D01 (2019)
P.C.Srivastava, B.Bhoy, M.J.Ermamatov
Different seniority states of 119-126Sn isotopes: shell-model description
doi: <https://doi.org/10.1093/ptep/ptz108>
60. *Physical Review C* 100, 014322 (2019)
J.Williams, et al. A. Kumar P.C.Srivastava,
Structure of 28Mg and influence of the neutron pf shell
doi: <https://doi.org/10.1103/PhysRevC.100.014322>
59. *J. Cosmol. Astropart. Phys.* 2018, 021 (2018)
F.T.AvignoneIII, R.J.Creswick, J.D.Vergados, P.Pirinen, P.C.Srivastava, J.Suhonen
Estimating the flux of the 14.4 keV solar axions
doi: <https://dx.doi.org/10.1088/1475-7516/2018/01/021>
58. *Physical Review C* 98, 024319 (2018)
B.S.NaraSingh, D.M.Cullen, M.J.Taylor, P.C.Srivastava et al.,
Level structure above the 17+ isomeric state in $^{152}_{69}\text{Tm}_{83}$
doi: <https://doi.org/10.1103/PhysRevC.98.024319>
57. *Physical Review C* 97, 024310 (2018)
A.Saxena, P.C.Srivastava, T.Suzuki
Ab initio calculations of Gamow-Teller strengths in the sd shell
doi: <https://doi.org/10.1103/PhysRevC.97.024310>
56. *Physical Review C* 95, 064320 (2017)
S.Biswas et al., P.C.Srivastava
High-spin states in 133Cs and the shell model description
doi: <https://doi.org/10.1103/PhysRevC.95.064320>
55. *European Physical Journal A: Hadrons and Nuclei* 53, 134 (2017)
L.Kucuk et al., P.C.Srivastava
Half-life determination of $T_z = -1$ and $T_z = -1/2$ proton-rich nuclei and the β decay of 58Zn
doi: <https://doi.org/10.1140/epja/i2017-12327-1>
54. *JPS Conf.Proc.* 14, 010510 (2017)
B.Rubio et al., P.C. Srivastava
Beta Decay Studies of Proton Rich Nuclei, an Important Ingredient for rp-Process Calculations
doi: <https://doi.org/10.7566/JPSCP.14.010510>
53. *Nuclear Physics A* 961, 68 (2017)
A.Saxena, P.C.Srivastava, J.G.Hirsch, V.K.B.Kota, M.J.Ermamatov
35, 37, 39S isotopes in sd-pf space: Shell-model interpretation
doi: <https://doi.org/10.1016/j.nuclphysa.2017.02.008>
52. *Physical Review C* 96, 024316 (2017)
A.Saxena, P.C.Srivastava
First-principles results for electromagnetic properties of sd shell nuclei
doi: <https://doi.org/10.1103/PhysRevC.96.024316>
51. *European Physical Journal A: Hadrons and Nuclei* 53, 69 (2017)
P.Singh et al., P.C. Srivastava
Identification of levels above 6- isomeric state in 66Cu
doi: <https://doi.org/10.1140/epja/i2017-12258-9>
50. *Physical Review C* 95, 011303 (Rapid) (2017)
P.C.Srivastava, S.Åberg, I.Ragnarsson
Triaxial rotation-axis flip triggered by an isoscalar np pair
doi: <https://doi.org/10.1103/PhysRevC.95.011303>

49. *Acta Physica Polonica B* 48, 807 (2017)
P.C.Srivastava
High-spin Structures of the Near-spherical Nuclei 91, 92Zr
doi: <https://doi.org/10.5506/APhysPolB.48.807>
48. *Journal of Physics G: Nuclear and Particle Physics* 44, 125107 (2017)
P.C.Srivastava, R.Sahu, V.K.B.Kota
Shell model results for $T = 1$ and $T = 0$ bands in 66As
doi: <https://dx.doi.org/10.1088/1361-6471/aa946d>
47. *Physical Review Letters* 116, 072501 (2016)
M.Alanssari et al., P.C.Srivastava
Single and Double Beta-Decay Q Values among the Triplet 96Zr, 96Nb, and 96Mo
doi: <https://doi.org/10.1103/PhysRevLett.116.072501>
46. *Physical Review C* 93, 034324 (2016)
S.Biswas et al. P.C. Srivastava
Structure of $^{132}_{52}\text{Te}_{80}$: The two-particle and two-hole spectrum of $^{132}_{50}\text{Sn}_{82}$
doi: <https://doi.org/10.1103/PhysRevC.93.034324>
45. *Pramana* 86, 1055 (2016)
M.J.Ermamatov, H.Yeppez-Martinez, P.C.Srivastava
Bohr Hamiltonian with different mass parameters applied to band structures of Eu isotopes built on Nilsson orbitals
doi: <https://doi.org/10.1007/s12043-015-1133-2>
44. *Physical Review C* 93, 034308 (2016)
M.Haaranen, P.C.Srivastava, J.Suhonen
Forbidden nonunique β decays and effective values of weak coupling constants
doi: <https://doi.org/10.1103/PhysRevC.93.034308>
43. *European Physical Journal A: Hadrons and Nuclei* 52, 181 (2016)
V.Kumar, P.C.Srivastava
Shell model description of Gamow-Teller strengths in pf-shell nuclei
doi: <https://doi.org/10.1140/epja/i2016-16181-3>
42. *Nuclear Physics A* 955, 1 (2016)
N.Kumar et al. P.C.Srivastava
Polarization measurements and high-spin states in $^{86}_{38}\text{Sr}_{48}$
doi: <https://doi.org/10.1016/j.nuclphysa.2016.05.018>
41. *Journal of Physics G: Nuclear and Particle Physics* 43, 105104 (2016)
V.Kumar, P.C.Srivastava, H.Li
Nuclear β^- -decay half-lives for fp and fpg shell nuclei
doi: <https://dx.doi.org/10.1088/0954-3899/43/10/105104>
40. *Physical Review D* 93, 095012 (2016)
P.Pirinen, P.C.Srivastava, J.Suhonen, M.Kortelainen
Shell-model study on event rates of lightest supersymmetric particles scattering off 83Kr and 125Te
doi: <https://doi.org/10.1103/PhysRevD.93.095012>
39. *Acta Physica Polonica B* 47, 2151 (2016)
P.C.Srivastava, V.Kumar, M.J.Ermamatov
High-spin Structure of 87Sr and 87Zr Nuclei: Shell-model Interpretation
doi: <https://doi.org/10.5506/APhysPolB.47.2151>
38. *Physical Review C* 94, 064306 (2016)
P.C.Srivastava, V.Kumar
Spectroscopic factor strengths using ab initio approaches
doi: <https://doi.org/10.1103/PhysRevC.94.064306>

37. **Physical Review C** 93, 024316 (2016)
D.Suzuki et al., P.C.Srivastava
Second 0^+ state of unbound ^{12}O : Scaling of mirror asymmetry
doi: <https://doi.org/10.1103/PhysRevC.93.024316>
36. **Journal of Physics G: Nuclear and Particle Physics** 43, 115002 (2016)
J.D.Vergados, F.T.AvignoneIII, M.Kortelainen, P.Pirinen, P.C.Srivastava, J.Suhonen, A.W.Thomas
Inelastic WIMP-nucleus scattering to the first excited state in ^{125}Te
doi: <https://dx.doi.org/10.1088/0954-3899/43/11/115002>
35. **Modern Physics Letters A** 30, 1550093 (2015)
V.Kumar, P.C.Srivastava, I.O.Morales
High-spin structures of 77, 79, 81, 83As isotopes
doi: <https://doi.org/10.1142/s0217732315500935>
34. **Nuclear Physics A** 942, 1 (2015)
V.Kumar, P.C.Srivastava, M.J.Ermamatov, I.O.Morales
Analysis of proton and neutron pair breakings: High-spin structures of $^{124-127}\text{Te}$ isotopes
doi: <https://doi.org/10.1016/j.nuclphysa.2015.07.012>
33. **Physical Review C** 91, 024321 (2015)
B.Maheshwari, A.K.Jain, P.C.Srivastava
 6^+ isomers in neutron-rich Sn isotopes beyond $N=82$ and effective interactions
doi: <https://doi.org/10.1103/PhysRevC.91.024321>
32. **European Physical Journal A: Hadrons and Nuclei** 51, 3 (2015)
P.C.Srivastava, R.Sahu, V.K.B.Kota
Shell model and deformed shell model spectroscopy of ^{62}Ga
doi: <https://doi.org/10.1140/epja/i2015-15003-6>
31. **Physical Review D** 92, 015015 (2015)
J.D.Vergados, F.T.Avignone, III, P.Pirinen, P.C.Srivastava, M.Kortelainen, J.Suhonen
Theoretical direct WIMP detection rates for transitions to the first excited state in ^{83}Kr
doi: <https://doi.org/10.1103/PhysRevD.92.015015>
30. **Physical Review C** 90, 044314 (2014)
M.Haaranen, P.C.Srivastava, J.Suhonen, K.Zuber
 β -decay half-life of ^{50}V calculated by the shell model
doi: <https://doi.org/10.1103/PhysRevC.90.044314>
29. **Physical Review C** 90, 024315 (2014)
S.Kumar, N.Kumar, S.Mandal, S.C.Pancholi, P.C.Srivastava et al.,
High spin band structure of $^{85}_{38}\text{Sr}_{47}$
doi: <https://doi.org/10.1103/PhysRevC.90.024315>
28. **Nuclear Data Sheets** 120, 37 (2014)
B.Rubio et al., P.C.Srivastava
Beta Decay Study of the $T_z = -256$ Nucleus and the Determination of the Half-Lives of a Few fp-shell Nuclei
doi: <https://doi.org/10.1016/j.nds.2014.06.135>
27. **Physical Review C** 89, 044315 (2014)
S.Saha et al., P.C.Srivastava
Investigation of the high spin structure of ^{88}Zr
doi: <https://doi.org/10.1103/PhysRevC.89.044315>
26. **Physical Review C** 90, 014306 (2014) P.Singh et al., P.C. Srivastava
Yrast structure of the shell model nucleus ^{89}Nb
doi: <https://doi.org/10.1103/PhysRevC.90.014306>
25. **Physics of Atomic Nuclei** 77, 1334 (2014)
P.C.Srivastava, V.Kumar, M.J.Ermamatov
High-spin structures of 86, 87, 88, 89Y isotopes
doi: <https://doi.org/10.1134/S1063778814100111>

24. **Physical Review C** 87, 054316 (2013)
A.Astier et al., P.C. Srivastava
High-spin structures of $^{136}_{55}\text{Cs}_{81}$
doi: <https://doi.org/10.1103/PhysRevC.87.054316>
23. **International Journal of Modern Physics E** 22, 1350091 (2013)
V.Kumar, P.C.Srivastava
Structure of odd 79, 81, 83Se isotopes with proton and neutron excitations across $Z=28$ and $N=40$
doi: <https://doi.org/10.1142/S0218301313500912>
22. **Journal of Physics G: Nuclear and Particle Physics** 40, 095107 (2013)
R.Sahu, P.C.Srivastava, V.K.B.Kota
Deformed shell model results for neutrinoless positron double beta decay of nuclei in the $A = 60-90$ region
doi: <https://dx.doi.org/10.1088/0954-3899/40/9/095107>
21. **Journal of Physics G: Nuclear and Particle Physics** 40, 035106 (2013)
P.C.Srivastava, M.J.Ermamatov, I.O.Morales
High-spin structures of $^{136}_{54}\text{Xe}$, $^{137}_{55}\text{Cs}$, $^{138}_{56}\text{Ba}$, $^{139}_{57}\text{La}$ and $^{140}_{58}\text{Ce}$: a shell model description
doi: <https://dx.doi.org/10.1088/0954-3899/40/3/035106>
20. **Physics of Atomic Nuclei** 76, 692 (2013)
P.C.Srivastava, M.J.Ermamatov
Structure of odd Ge isotopes with $40 < N < 50$
doi: <https://doi.org/10.1134/S1063778813060124>
19. **Physica Scripta** 88, 045201 (2013)
P.C.Srivastava, M.J.Ermamatov
Comparison of shell model results for even-even Se isotopes
doi: <https://dx.doi.org/10.1088/0031-8949/88/04/045201>
18. **Physical Review C** 85, 034307 (2012)
M.J.Ermamatov, P.C.Srivastava, P.R.Fraser, P.Stransky, I.O.Morales
Coriolis contribution to excited states of deformed ^{163}Dy and ^{173}Yb nuclei with multiple mass parameters
doi: <https://doi.org/10.1103/PhysRevC.85.034307>
17. **European Physical Journal A: Hadrons and Nuclei** 48, 123 (2012)
M.J.Ermamatov, P.C.Srivastava, P.R.Fraser, P.Stransky
Ground-state, β and $K = 11/2^-$ γ bands in $^{163, 165}\text{Er}$
doi: <https://doi.org/10.1140/epja/i2012-12123-5>
16. **Journal of Physics:Conf.Ser.** 387, 012020 (2012)
J.G.Hirsch, P.C.Srivastava
Shell model description of Ge isotopes
doi: <https://dx.doi.org/10.1088/1742-6596/387/1/012020>
15. **Physical Review C** 86, 034315 (2012)
S.Saha et al., P.C.Srivastava
Experimental investigation of shell-model excitations of ^{89}Zr up to high spin
doi: <https://doi.org/10.1103/PhysRevC.86.034315>
14. **Journal of Physics G: Nuclear and Particle Physics** 39, 015102 (2012)
P.C.Srivastava
Structure of $^{71-78}\text{Ga}$ isotopes in the $f_{5/2}p_{g9/2}$ and $f_{p9/2}$ spaces
doi: <https://dx.doi.org/10.1088/0954-3899/39/1/015102>
13. **International Journal of Modern Physics E** 21, 1250007 (2012)
P.C.Srivastava, I.Mehrotra
Nuclear structure study around $Z = 28$
doi: <https://doi.org/10.1142/S0218301312500073>

12. **Modern Physics Letters A** 27, 1250061 (2012)
P.C.Srivastava
Nuclear structure study with core excitations in Ni region: for fpg9/2 space
doi: <https://doi.org/10.1142/S0217732312500617>
11. **International Journal of Modern Physics E** 21, 1250049 (2012)
T.Trivedi, P.C.Srivastava, D.Negi, I.Mehrotra
Shell model description of 102-108Sn isotopes
doi: <https://doi.org/10.1142/S0218301312500498>
10. **Physical Review Letters** 107, 102502 (2011)
P.Ascher et al., P.C.Srivastava
Direct Observation of Two Protons in the Decay of ^{54}Zn
doi: <https://doi.org/10.1103/PhysRevLett.107.102502>
9. **Can. J. Phys.** 89, 1101 (2011)
R.Sahu, P.C.Srivastava, V.K.B.Kota
Deformed shell model results for two-neutrino double-beta decay of ^{82}Se
doi: <https://doi.org/10.1139/p11-116>
8. **International Journal of Modern Physics E** 20, 637 (2011)
P.C.Srivastava, I.Mehrotra
Monopole shift in odd neutron-rich F isotopes: A shell model description
doi: <https://doi.org/10.1142/S0218301311018125>
7. **Physics of Atomic Nuclei** 74, 971 (2011)
P.C.Srivastava, V.K.B.Kota
Shell-model results in fp and fpg9/2 spaces for 61, 63, ^{65}Co isotopes
doi: <https://doi.org/10.1134/S1063778811070143>
6. **Physical Review C** 83, 064301 (2011)
M.Vyas, V.K.B.Kota, P.C.Srivastava
One plus two-body random matrix ensembles with parity: Density of states and parity ratios
doi: <https://doi.org/10.1103/PhysRevC.83.064301>
5. **Physical Review C** 84, 014329 (2011)
K.Wimmer et al., P.C.Srivastava, P.Van Isacker
Identification of the slow E3 transition $^{136}\text{Cs}^{\text{m}} \rightarrow ^{136}\text{Cs}$ with conversion electrons
doi: <https://doi.org/10.1103/PhysRevC.84.014329>
4. **Physics of Atomic Nuclei** 73, 1656 (2010)
P.C.Srivastava, I.Mehrotra
Large-scale shell-model calculations for even-odd 61-65Fe isotopes
doi: <https://doi.org/10.1134/S1063778810100030>
3. **European Physical Journal A: Hadrons and Nuclei** 45, 185 (2010)
P.C.Srivastava, I.Mehrotra
Large-scale shell model calculations for odd-odd 58-62Mn isotopes
doi: <https://doi.org/10.1140/epja/i2010-10995-9>
2. **International Journal of Modern Physics E** 18, 2134 (2009)
Y.Fujita et al., P.C.Srivastava
Nuclear weak response from the combined study of β -decay and charge-exchange reaction
doi: <https://doi.org/10.1142/S0218301309014433>
1. **Journal of Physics G: Nuclear and Particle Physics** 36, 105106 (2009)
P.C.Srivastava, I.Mehrotra
Large-scale shell model calculations for even-even 62-66Fe isotopes
doi: <https://dx.doi.org/10.1088/0954-3899/36/10/105106>

Details of Master theses supervised

S.No.	Title of Thesis	Year	Name of Scholar
1.	Shell model study of ^{135}La for fpg9/2d5/2 space	2013	Rishabh Mehta
2.	Realistic effective interaction for fpg9/2d5/2 space	2014	Sucheta Majumdar
3.	Gamow-Teller strengths for fp shell nuclei	2014	Prabhakar
4.	Spectroscopic factor calculation for neutron rich nuclei in the A=18-48 region	2016	Ritu Raj Verma
5.	Gamow-Teller strengths and electron-capture rates	2016	Shalini Kumpati
6.	To develop NN+NNN effective interaction	2017	Garima Sharma
7.	Shell model study for quadrupole and magnetic moments for Mg and Al isotopes	2017	Pankaj
8.	Decomposition of matrix elements	2018	Heemant Kumar
9.	A study of Neutrino Oscillation in Matter	2018	Aman Kumar
10.	Study of spectroscopic strengths	2018	Anindita Karmakar
11.	Study of quadrupole and magnetic moments	2019	Pooja
12.	Shell model study of p shell nuclei with NN+3N forces	2020	Radhika Goel
13.	Beta Decay study of sd shell nuclei	2020	Rohit
14.	Calculating charge radii of calcium isotopic chain using shell model	2021	Vaibhav Chachar
15.	Forbidden Beta Decay Transitions	2021	Anamika Verma
16.	Structure and Shape of Open Shell Nuclei	2022	Shubham Sati
17.	In-Medium Similarity Renormalization Group Approach to the Nuclear Many-Body Problem	2022	Shruti Sharma
18.	Duflo-Zuker mass formula	2023	Sakshi
19.	Quantum Computing	2023	Nishu

Research Collaborators:

- Prof. Indira Mehrotra, Ex Head and Professor, Department of Physics, University of Allahabad.
- Prof. Piet Van Isacker, GANIL, France. * Prof. Jorge Hirsch, ICN, UNAM, Mexico.
- Prof. V.K.B. Kota, PRL, Ahmedabad. * Prof. Jouni Suhonen, Jyväskylä, Finland.
- Prof. A.K. Jain, Amity University. * Prof. Herbert Muther, University of Tübingen, Germany.
- Prof. Petr Navrátil, TRIUMF, Canada. * Prof. Toshio Suzuki, Nihon University, Japan.
- Prof. Noritaka Shimizu, Tsukuba University, Japan. *Prof. Sven Aberg, Lund University, Sweden.
- Prof. Larry Zamick, Rutgers University, USA. * Prof. Olivia Di Matteo, UBC, Canada.
- Prof. R. Palit, TIFR, Mumbai. * Prof. R. Sahu, Behrampur, India.
- Prof. Sujit Tandel, CBS Mumbai * Prof. K. Starosta, Simon Fraser University.