

**DR. SURENDER KUMAR**

Assistant Professor in Physics  
 (Department of Higher Education, Himachal Pradesh)  
 Presently posted at VallabhGovt. College Mandi  
 Himachal Pradesh - 175001  
 Contact no: +91-9876353871  
**Email:** [surenderkumar607@gmail.com](mailto:surenderkumar607@gmail.com)

**PERSONAL PROFILE:**

Father's Name: Sh. Chuharu Ram  
 SEX: Male  
 Marital Status : Married  
 Nationality: Indian  
 Languages Known: Hindi, English, & Punjabi

**PERMANENT ADDRESS:**

Village Banon, P.O. Sianji, Tehsil Sunder Nagar,  
 Distt. - Mandi H. P.- 175027

**DATE OF BIRTH:** 08-08-1980

**OBJECTIVE:**

Intend to work in a prestigious organization with committed and dedicated people, where I can effectively contribute my skills, and can explore myself fully and realize my potential.

**EDUCATIONAL QUALIFICATIONS:**

Examination	Discipline/ Specialization	School/college	Board/ University
Ph. D.	Experimental Nuclear Physics	Department of Physics, Panjab University Chandigarh	Panjab University Chandigarh
M.Sc.	Physics (H.S.)	Department of Physics, Panjab University Chandigarh	Panjab University Chandigarh
B.Sc.	Non-Medical Science	M.L.S.M College, Sunder Nagar Distt. Mandi, Himachal Pradesh	Himachal Pradesh University Shimla-05
Intermediate	Non-Medical Science	M.L.S.M College, Sunder Nagar Distt. Mandi, Himachal Pradesh	H. P. Board of School Education, Dharamshala
Matriculation	Math, Science, English	Govt. Senior Secondary School,Jaidevi(Sunder Nagar)	H. P. Board of School Education, Dharamshala
B.Ed.	Teaching of Math, Teaching of Science	Govt. College of Teacher Education Dharamsala (Himachal Pradesh)	Himachal Pradesh University, Shimla

## **ADDITIONAL QUALIFICATIONS:**

- + Himachal Pradesh State Eligibility Test in Physics
- + CSIR-UGC (JRF+ Lectureship) in Physics
- + Junior Research fellowship (for two years during Ph.D.)
- + Senior Research fellowship (for three years during Ph.D.)

## **COMPUTER KNOWLEDGE:**

- + DOS, WINDOWS, and LINUX Operating Systems
- + Microsoft office, Libreoffice, LATEX, Diagram editing in CorelDraw, Origin lab, qtiplot, xmgrace, C++, Peak fitting and various other tools used in the field of Experimental Nuclear -ray spectroscopy such as RadWare and CANDLE

## **RESEARCH TOPIC DURING Ph. D.:**

Nuclear structure studies in vicinity of the  $Z \approx 50$  shell closure through the fusion-evaporation reactions.

## **Ph. D. SUPERVISORS:**

- + **Prof. Devinder Mehta**, Department of Physics, Panjab University Chandigarh.
- + **Prof. J.K. Goswamy**, U.I.E.T., Panjab University Chandigarh.

## **SEMINARS, SCHOOLS AND WORKSHOPS ATTENDED**

- + DAE Symposium on Nuclear Physics at BITS Pillani [20-24 December, 2010, Paper Presentation].
- + 4<sup>th</sup> Chandigarh Science Congress (2010). [Participated]
- + National Theme Workshop on Nuclear Reaction Mechanism, Department of Physics, Panjab University Chandigarh [17-19 March (2010), Participated]
- + Summer School on Experimental Nuclear Physics [05-25 September (2011), Participated].
- + 4<sup>th</sup> DAE-BRNS Theme Meeting on EXFOR Compilation of Nuclear Data, [April 04-08, 2011, Participated]
- + Advances in Nuclear Physics at International Centre Goa [07-18 November (2011), Participated]
- + 6<sup>th</sup> Chandigarh Science Congress (2012) [Paper Presentation].
- + One-day Workshop on MATLAB held in University Institute of Engineering and Technology,

PanjabUniversity Chandigarh (2012) [Participated]

- ✚ Frontiers in -ray Spectroscopy (FIG12) International conference held at IUAC, New Delhi, [05-07 March (2012), Participated].
- ✚ International conference on Recent Trends in Nuclear Physics, at Chitkara University [19-21 March (2012), Paper Presentation].
- ✚ 8th Chandigarh Science Congress (2014) [Participated]
- ✚ India-UK Seminar in Nuclear Physics at ISOLDE 22-24 January (2014) at Department of Physics, Panjab University, Chandigarh [Participated].
- ✚ Refresher courses in experimental Physics, Panjab University, Chandigarh (2014)
- ✚ Induction Training Program for newly appointed Assistant Professors at S.C.E.R.T. Solan (H.P.), 14-05-2018 to 26-05-2018.
- ✚ Participated and completed 6 days online faculty development programme (FDP) on LATEX organized by Govt. College Una (H.P.) in association with spoken tutorial, IIT Bombay w.e.f. 15-05-2020 to 20-05-2020
- ✚ Participated in two days national online workshop on “Nano materials and its applications for human and environment” organized by A.S. College, Khanna (Punjab), Distt. Ludianaw.e.f. 15<sup>th</sup> to 16<sup>th</sup> July, 2020
- ✚ Participated in Two days seminar cum e-Workshop on experimental electronics held at Hans Raj MahilaMahavidyalaya, Jalandhar (Punjab) India w.e.f. 31<sup>st</sup> July to 1<sup>st</sup> August 2020.
- ✚ Attended 14 days Science Academies Refresher Course in Experimental Physics at Vallabh Govt. College, Mandi (H.P.) in collaboration with Panjab University, Chandigarh w.e.f. 16<sup>th</sup> May, 2021 to 31<sup>th</sup> May, 2021
- ✚ Chaired one Technical Session on 23<sup>rd</sup> December, 2022 in one day national conference on “ Culture, Science, Spirtuality and Education” held at Govt. College, Bassa (Gohar), Distt. Mandi (H.P.) in association with Pratibha Spandan Soceity, Shimla (H.P.)
- ✚ Worked as a member of organizing committee on 23<sup>rd</sup> December, 2022 in one day national conference on “Culture, Science, Spirtuality and Education” held at Govt. College, Bassa (Gohar), Distt. Mandi (H.P.) in association with Pratibha Spandan Soceity, Shimla (H.P.)

## LIST OF PUBLICATIONS:

### A. Publications in International Journal:

#### 1. High spin states in doubly-odd $^{98}\text{Rh}$

**S. Kumar**, S. Sihotra, K. Singh, V. Singh, S. S. Malik, J. Goswami, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, C. R. Praharaj and D. Mehta, Phys. Rev. C **89**, 034303 (2014).

[ISSN: 0556-2813 (print) and 1538-4497 (CD-Rom)]

**Impact factor: 3.733**

<https://journals.aps.org/prc/abstract/10.1103/PhysRevC.89.034303>

#### 2. High spin states in $^{99}\text{Rh}$

**S. Kumar**, S. Sihotra, K. Singh, V. Singh, S.S. Malik, I. Ragnarsson, T. Trivedi, J. Goswami, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, C. R. Praharaj and D. Mehta, J. Phys. G: Nucl. Part. Phys. **41** 105110 (2014).[ISSN:1361-6471 (online) and 0954-3899 (print)]

**Impact factor:2.77**

<https://iopscience.iop.org/article/10.1088/0954-3899/41/10/105110/meta>

#### 3. New spectroscopic informations in $^{98,99}\text{Rh}$ nuclei

**S. Kumar**, S. Sihotra, K. Singh, V. Singh, J. Goswami, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, S. K. Ghorui, C. R. Praharaj, and D. Mehta. AIP Conf. Proc. **1524**, 127 (2013).

[ISSN: 0094-243X]

<https://aip.scitation.org/doi/abs/10.1063/1.4801694>

#### 4. Nuclear structure studies close to $N = Z = 50$

**S. Kumar**, S. Sihotra, Z. Naik, K. Singh, J. Goswami, R. Palit, N. Singh, R. Kumar, R. P. Singh, S. Muralithar, R. Bhowmik, and D. Mehta, AIP Conf. Proc. **1609**, 142 (2014).

[ISSN: 0094-243X].

<https://aip.scitation.org/doi/abs/10.1063/1.4893267>

#### 5. Non-collective states in $^{122}\text{Te}$

S. Nag, P. Singh, K. Selvakumar, A. K. Singh, A. Bisoi, A. Goswami, S. Bhattacharya, **Surender Kumar**, Kuljeet Singh, J. Sethi, S. Saha, T. Trivedi, S. V. Jadhav, R. Donthi, B. S. Naidu and R. Palit, Eur. Phys. J. A **49** 145 (2013).[ISSN: 1434-601X (electronic version)] **Impact factor: 2.736.**

<https://link.springer.com/article/10.1140/epja/i2013-13145-1>

### 6. Excited states in $^{99}\text{Pd}$ .

S. Sihotra, Z. Naik, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, R. Kumar, R. P. Singh, S. Muralithar, R. K. Bhowmik, R. Palit, and D. Mehta, Phys. Rev. C **83**, 024313 (2011).

[ISSN: 0556-2813 (print) and 1538-4497 (CD-Rom)]

**Impact factor: 3.733**

<https://journals.aps.org/prc/abstract/10.1103/PhysRevC.83.024313>

### 7. High-spin spectroscopy of $^{122}\text{I}$ .

P. Singh, S. Nag, K. Selvakumar, A. K. Singh, I. Ragnarsson, A. Bisoi, A. Goswami, S. Bhattacharya, **S. Kumar**, and K. Singh, Phys. Rev. C **85**, 054311 (2012).

[ISSN: 0556-2813 (print) and 1538-4497 (CD-Rom)]

**Impact factor: 3.733**

<https://journals.aps.org/prc/abstract/10.1103/PhysRevC.85.054311>

### 8. High spin structure in $^{130,131}\text{Ba}$

NavneetKaur, A. Kumar, G. Mukherjee, Amandeep Singh, **S. Kumar**, RajbirKaur, Varinderjit Singh, B. R. Behera, K. P. Singh, G. Singh, H. P. Sharma, Suresh Kumar, M. Kumar Raju, P. V. MadhusudhanRao, S. Muralithar, R. P. Singh, Rakesh Kumar, N. Madhvan, R. K. Bhowmik. Eur. Phys. J. A **50** 5 (2014). [ISSN: 1434-601X (electronic version)] **Impact factor: 2.736**

<https://link.springer.com/article/10.1140/epja/i2014-14005-2>

### 9. Structure of dipole bands in doubly odd $^{102}\text{Ag}$

V. Singh, S. Sihotra, S. S. Malik, G. H. Bhat, R. Palit, J. A. Sheikh, **S. Kumar**, N. Singh, K. Singh, J. Goswamy, J. Sethi, S. Saha, T. Trivedi, and D. Mehta, Phys. Rev. C **94**, 044320 (2016). [ISSN: 0556-2813 (print) and 1538-4497 (CD-Rom)] **Impact factor: 3.733**.

<https://journals.aps.org/prc/abstract/10.1103/PhysRevC.94.044320>

### 10. Band structures in $^{101}\text{Pd}$

V. Singh, S. Sihotra, G. H. Bhat, J. A. Sheikh, M. Kaur, **S. Kumar**, K. Singh, J. Goswamy, S. Saha, J. Sethi, R. Palit, S. S. Malik, N. Singh, U. Garg, and D. Mehta, Phys. Rev. C **95**, 064312 (2017). [ISSN: 2469-9985 (print) and 1538-4497 (CD-Rom)] **Impact factor: 3.82**.

<https://journals.aps.org/prc/abstract/10.1103/PhysRevC.95.064312>

### 11. Systematic study of octupole correlation in the A~130 mass region

Gurmeet Kumar, Rajesh Kumar and **Surender Kumar**, International Journal of Pure and Applied Physics, Vol. 13, No. 1 (2017), pp. 89-95.

<https://inis.iaea.org/search/searchsinglerecord.aspx?recordsFor=SingleRecord&RN=48070821>

### 12. Shell-model Description in $^{99}\text{Rh}$ and systematic of Odd-A Rh Isotopes

**S. Kumar**, S. Sihotra, V. Singh, J. Rather, M. Kaur, J. Goswamy, N. Singh, D. Mehta, T. Trivedi, R.P. Singh, S. Muralithar, R. Palit, ActaPhysicaPolonica B, Vol. 52 (2019) 2.

<https://www.actaphys.uj.edu.pl/fulltext?page=159&series=Reg&vol=50>

## Publications/Absracts in Symposium, conferences and workshops

### 1. Excited states in $^{98}\text{Rh}$

**S. Kumar**, S. Sihotra, K. Singh, J. Goswamy, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R.K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **55**, 44 (2010)

<http://www.symmpnp.org/proceedings/55/A22.pdf>

### 2. Excited states in $^{99}\text{Rh}$

S. Sihotra, A. Kaur, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, S. Muralithar, R. Kumar, R. P. Singh, R.K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **55**, 46 (2010)

<http://www.symmpnp.org/proceedings/55/A23.pdf>

### 3. Observation of maximally aligned states in $\pi h_{11/2} \nu h_{11/2}$ band of $^{122}\text{I}$

P. Singh, S. Nag, K. Selvakumar, A. K. Singh, A. Bisoi, A. Goswami, S. Bhattacharya, **S. Kumar**, K., J. Sethi, S. Saha, T. Trivedi, S. K. Jadav, R. Donthi, B. S. Naidu, and R. Palit, Proc. DAE Symposium Nucl. Phys. **56**, 204 (2011).

<http://www.symmpnp.org/proceedings/>

### 4. Study of valence space excitations in $^{122}\text{Te}$

S. Nag, P. Singh, K. Selvakumar, A. K. Singh, A. Bisoi, A. Goswami, S. Bhattacharya, **S. Kumar**, K. Singh, J. Sethi, S. Saha, T. Trivedi, S. K. Jadav, R. Donthi, B. S. Naidu, and R. Palit, Proc. DAE Symposium Nucl. Phys. **56**, 288 (2011).

<http://www.symmpnp.org/proceedings/>

### 5. Band structures in $^{98,99}\text{Rh}$ Nuclei.

**SurenderKumar**, S. Sihotra, K. Singh, J. Goswamy, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **56**, 424 (2011).

<http://www.symppnp.org/proceedings/>

### 6. Band structures in $^{96}\text{Ru}$

JaspreetKaur, S. Sihotra, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, R. Palit, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **56**, 434 (2011).

<http://www.symppnp.org/proceedings/>

### 7. Nuclear structure studies close to $Z \approx N \approx 50$

**S. Kumar**, S. Sihotra, J. Kaur, V. Singh, K. Singh, J. Goswamy, N. Singh, R. Palit, C. R. Prahraj, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **57**, 192 (2012)[ISBN: 818372067-6].

<http://www.symppnp.org/proceedings/>

### 8. Band structures in $^{96}\text{Tc}$

V. Singh, S. Sihotra, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, R. Palit, and D. Mehta Proc. DAE Symposium Nucl. Phys. **57**, 358 (2012) [ISBN: 818372067-6]

<http://www.symppnp.org/proceedings/>

### 9. Lifetime measurements in $^{101}\text{Pd}$

S. Sihotra, V. Singh, **S. Kumar**, J. Goswamy, N. Singh, S. Saha, J. Sethi, T. Trivedi, R. Palit, H. C. Jain, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **58**, 232 (2013).

[ISBN: 81-8372-070-6]

<http://www.symppnp.org/proceedings/>

### 10. Level Structures in $^{102}\text{Ag}$

V. Singh, S. Sihotra, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, J. Sethi, S. Saha, T. Trivedi, R. Palit, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **58**, 238 (2013).

[ISBN: 81-8372-070-6]

<http://www.symppnp.org/proceedings/>

### 11. Excited States in $^{96}\text{Tc}$

V. Singh, S. Sihotra, **S. Kumar**, K. Singh, J. Goswamy, N. Singh, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **58**, 242 (2013).[ISBN: 81-8372-070-6]

<http://www.symppnp.org/proceedings/>

### 12. Band structures in $^{99}\text{Rh}$

**S. Kumar**, S. Sihotra, V. Singh, J. Goswamy, K. Singh, N. Singh, R. Kumar, R. P. Singh, S. Muralithar, R. K. Bhowmik, R. Palit, S. S. Malik, T. Trivedi, I. Ragnarsson, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **58**, 294 (2013)[ISBN: 818372070-6]

<http://www.symppnp.org/proceedings/>

### 13. Excited States in doubly-Odd $^{98}\text{Rh}$

**S. Kumar**, S. Sihotra, K. Singh, V. Singh, J. Goswamy, N. Singh, S. Muralithar, R. Kumar, R. P. Singh, R. K. Bhowmik, S. S. Malik, R. Palit, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **58**, 298 (2013)[ISBN: 818372070-6]

<http://www.symppnp.org/proceedings/>

### 14. Antimagnetic Rotation in $^{101}\text{Pd}$ .

V. Singh, S. Sihotra **S. Kumar**, J. Goswamy, S. Saha, J. Sethi, T. Trivedi, R. Palit, H. C. Jain, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **59**, 224 (2014)[ISBN: 818372076-5]

<http://www.symppnp.org/proceedings/>

### 15. Chiral Structures in doubly odd nucleus $^{102}\text{Ag}$ .

V. Singh, S. Sihotra, G.H. Bhat, **S. Kumar**, K. Singh, N. Singh, J. Goswamy, J. Sethi, S. Saha, J.A. Sheikh, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **59**, 226 (2014)[ISBN: 818372076-5]

<http://www.symppnp.org/proceedings/>

### 16. Multi particle excitations in $^{102}\text{Cd}$ .

V. Singh, S. Sihotra, **S. Kumar**, Sandeep, N. Singh, J. Goswamy, S. Saha, J. Sethi, R. Palit, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **59**, 228 (2014).[ISBN: 818372076-5]

<http://www.symppnp.org/proceedings/>



### 17. Shell model calculations in $^{99}\text{Rh}$ .

**S. Kumar**, S. Sihotra, T. Trivedi, V. Singh, K. Singh, J. Goswamy, N. Singh, R. P. Singh, S. Muralithar, R. Kumar, R. K. Bhowmik, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **59**, 98 (2014)[ISBN: 818372076-5]

<http://www.symppnp.org/proceedings/>

### 18. Low-lying states near $I^\pi = 5^+$ Ground State in $^{102}\text{Ag}$

V. Singh, S. Sihotra, **S. Kumar**, K. Singh, N. Singh, J. Goswamy, J. Sethi, S. Saha, R. Palit, G.H. Bhat, J.A. Sheikh, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **60**, 218 (2015) [ISBN: 818372077-3]

<http://www.symppnp.org/proceedings/>

### 19. Structure of degenerate bands in $^{120}\text{I}$

S. Sihotra, M. Kaur, V. Singh, **S. Kumar**, N. Singh, N. Kaur, J. Goswamy, J. Sethi, S. Saha, S. Biswas, R. Palit, R. Kumar, R. P. Singh, S. Muralithar, Soumender, S. Nag, P. Singh, K. Selvakumar, A. K. Singh, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **61**, 152 (2016) [ISBN: 818372079-X]

<http://www.symppnp.org/proceedings/>

### 20. Band Structure in $^{120}\text{I}$

M. Kaur, S. Sihotra, \* J. Rather, V. Singh, **S. Kumar**, N. Singh, N. Kaur, J. Goswamy, J. Sethi, S. Saha, S. Biswas, R. Palit, R. Kumar, R. P. Singh, S. Muralithar, Soumender, S. Nag, P. Singh, K. Selvakumar, A. K. Singh, and D. Mehta, Proc. DAE Symposium Nucl. Phys. **63**, 120 (2018)

<http://www.symppnp.org/proceedings/>

## BOOKS/CHAPTERS PUBLISHED:

- ✚ Co-Author in a book of “Physics Workshop Skills” for SEC Subject of B.Sc. 2<sup>nd</sup> Year students with ISBN Number in RD Publications in the session 2022-23

## **WORK EXPERIENCE:**

1. **Worked as Teacher Assistant** in M. Sc. Laboratory during Ph.D. in the Department of Physics Panjab University Chandigarh-160014, Duration:-**2 Semesters**
2. **Worked as Assistant Professor** in Physics at Postgraduate College, **S.P.N. College, Mukerian**, Distt. Hoshiarpur (Under Panjab University)*w.e.f.*11-08-2014 to 22-08-2015.
3. **Worked as Assistant Professor** in Physics at **Malwa College Bondli – Samrala** (Under Panjab University) *w.e.f.*from 28-08-2014 to 24-12-2015 on grant-in-ad post of Punjab Govt.
4. **Worked as Assistant Professor** in Physics *w.e.f.* 24-12-2015 to 09-12-2017at **JCDAV College, Dasuya** on grant-in-ad.
5. **Worked as Assistant Professor** in Physics *w.e.f.* 11-03-2017 to 18-12-2018 at T.S. Negi Govt. Degree College, ReckongPeo, Distt.Kinnaur (H.P.).
6. **Worked as Assistant Professor** in Physics *w.e.f.*19-12-2018to 26-08-2022 at Govt. College, Bassa (Gohar), Distt. Mandi (H.P.).
7. **Presently Working as Assistant Professor** in Physics since27-08-2022 at Vallabh Govt. College, Mandi (H.P.).*w.e.f.* 27-08-2022 to till date
8. **Subjects taught at postgraduate level:** Analogue Electronics, Digital Electronics – II, Nuclear Physics& Computational Physics.
9. **Subjects taught at graduate level:** Solid state physics and electronics, Mechanics, Statistical Mechanics& Thermodynamics, Quantum Mechanics, Electricity and Magnetism, Vibrations and waves, Nuclear Physics.