




University Faculty Details Page on DU Web-site

Title	Dr.	First Name	SURESH	Last Name	KUMAR	Photograph
Designation	Assistant Professor (since 28-04-2008) & Radiological Safety Officer (level-1) (since 03 rd Feb 2011)					
Department	Physics and Astrophysics					
Address (Campus)	University of Delhi, Delhi-110007					
(Residence)	H-6, T.T.H., Dhaka Complex, University of Delhi, Delhi					
Phone No (Campus)	+91-11-27667725					
(Residence)optional	+91-11-27608521					
Mobile	+91-9599762352					
Fax	+91-11-27667061					
Email	skumar@physics.du.ac.in, sursvmk123@gmail.com					
Web-Page						
Education						
Subject	Institution	Year	Details			
B.Sc.(Non-Med.)	Himachal Pradesh university Shimla-5	2000	Physics, Chemistry, Math. Marks 79.88 %, 6 th Rank in University			
M.Sc. (Physics)	Himachal Pradesh university Shimla-5	2002	Special Emphasis on: Nuclear and Particle Physics, Particle and Astrophysics, Condensed Matter Physics Marks 70.61 % and Gold Medal (1 st Rank in University)			
Pre-Ph.D.	Indian Institute of Technology Roorkee	2004	Advance Quantum Mechanics Advance Classical Mechanics Garde 7.5/10			
Ph.D.	Indian Institute of Technology Roorkee	2007	Subjects: Nuclear Structure Thesis topic: "Study of Shape effects and Magnetic rotation in N=79 and 47 nuclei"			
Career Profile						
Organisation / Institution	Designation	Duration	Role			
Indian Institute of Technology Roorkee	Senior Research Fellow, Council of Scientific and Industrial Research (Govt. of India):	April 2007 to March 2008.	Teaching and Research			
Indian Institute of Technology Roorkee	Senior Research Fellow, Ministry of Human Resource Development (Govt.	January 2005 to December 2006	Teaching and Research			

	of India):		
Indian Institute of Technology Roorkee	Junior Research Fellow, Ministry of Human Resource Development (Govt. of India)	January 2003 to December 2004.	Teaching and Research
Nuclear Engineering Division, Argonne National Laboratory, USA	INDO-US Research Fellowship 2013	25 November, 2013 to 22 November 2014	Research (On study leave from University of Delhi)

Research Interests / Specialization

Experimental Nuclear Physics, Phenomenological Theoretical Calculation and Nuclear Data Compilation

Nuclear Structure using gamma-ray spectroscopy with Clover detector: magnetic rotation, E(5) symmetry in ^{132}Xe and theoretical explanations of MR bands using Tilted Axis Cranking (TAC) calculations. Empirical evidences for deformed magic number by analyzing the "Table of Superdeformed band ed. by Balraj Singh et al." Nuclear Data evaluation and Data compilation of A=221, 215 mass chain.

Physical Radiation Protection and Nuclear Safety

Research Experience and Training

RESEARCH EXPERIENCES

Experimental Nuclear Structure

Experimental nuclear structure studies at Tata Institute of Fundamental Study(TIFR), Mumbai and Inter University Accelerator Centre (IUAC) New Delhi, India to search Magnetic Rotation (MR), shape coexistence and influence of proton on nuclear structure of N = 78,79 and 47 (Gamma-ray spectroscopy of ^{139}Nd , ^{135}Ba , ^{135}La , ^{85}Sr nuclei). The experimental observations were well supported by theoretical calculations based on TAC model

Theoretical Calculations Using Tilted Axis Cranking (TAC) Model

Tilted axis cranking calculations were carried to understand nuclear structure in Mass A=80, 110 and 135 regions.
Phys.Rev. C 85, 014327 (2014) - *High Spin Band structure of ^{85}Sr*
Phys.Rev. C 85, 014327 (2012) - *Small quadrupole deformation for the dipole bands in ^{112}In*
Phys. Rev. C 85, 057301 (2012) *Shears mechanism in ^{109}In*
Phys. Rev. C 84, 041301 (2011) (Rapid Communication)- *Structural change of the unique-parity $\pi h_{11/2} \otimes \nu h_{11/2}$ configuration in ^{134}Cs*
Phys.Rev. C 81, 067304 (2010)- *Band structure and shape coexistence in $^{13556}\text{Ba}79$*
Phys.Rev. C 81, 054322 (2010)- *High spin spectroscopy and shears mechanism in ^{107}In*
Phys.Rev. C 80, 014320 (2009)- *High spin states in ^{139}Pm*
Phys.Rev. C 76, 014306 (2007)- *High spin structure of ^{139}Nd*

INDIAN NATIONAL GAMMA ARRAY (INGA) 24 clovers
2005- Present
Member of PICC since 2008

I) PARTIAL INGA COLLABORATIONS (DURING 2005-2008) : In between the various phases of INGA the various collaborating institutes would pool up the available resources and perform experiments preserving the spirit of national collaboration. At Tata Institute of Fundamental Research (TIFR) Mumbai, Seven clovers array was setup in collaboration with Saha Institute of Nuclear Physics (SINP) Kolkata, UGC-DAE CSR-Kolkata , Inter University Accelerator Centre (IUAC) Delhi, Variable Energy Cyclotron Centre (VECC) Kolkata and Indian Institute of Technology Roorkee- 5 experiments were performed. **II) INGA-PHASE 04 (DURING 2008-2010)** : The complete INGA array was installed in the new beam hall at IUAC, New Delhi in 2008. The early implementation of this phase had about 18-20 Clover detectors. Experiments were performed in two phases and in all about 30 experiments have been successfully completed.

III) INGA- PHASE 05 (DURING 2010 to till date) : The first phase of this facility is running and about 10 experiment has been performed at TIFR/BARC Pelletron Laboratory.

RADIATION DETECTORS

HPGe & Clover Detectors, Highly segmented Ge CLOVER Detectors; Planar Detector , Scintillation Detectors (LaBr₃(Ce), BGO, NaI, CsI), Nuclear Lab set-up of Nuclear Engineering Course

NUCLEAR DATA

Nuclear Structure and Decay Data Evaluation – ENSDF, XUNDL etc Nucl.Data Sheets **108**, 883 (2007) - *Nuclear Data Sheets for A = 221* Nucl.Data Sheets **114**, 2023 (2013) - *Nuclear Data Sheets for A = 215*

NUCLEAR RADIATION SAFETY & HANDLING

Handling of radioactivity and its waste management, segregation of radioactivity and its transportation. Training course form AERB for practical handling of the nuclear waste & attended ICTP school on Nuclear Security-2011.

COMPUTER SKILLS

Well versed with MS-Office and **Linux** system and AWK programming..

Programming knowledge: BASIC, **FORTRAN**, **Mathematica 4.1** and C++.

Graphics: MS Excel, Origin 6.1, Sigma Plot, **Mathematica**, Gnuplot, **Latex** and Xmgrace. **HTML**

LANGUAGES KNOWN

English and Hindi –writing as well as reading

PRACTICAL TRAINING

Participated in training course on “**Radiation Safety Aspects of use of ionizing Radiation in Research application**” during 01- 03 December 2010 at Delhi university Attended **Orientation Programme -98** emphasis on inculcation of certain teaching, research and managerial skill at **Academic Staff College Shimla** during 18th August 2010 to 16 September 2010 for career development as recommended by University Grant Commission.

Participated in International workshop “**Nuclear Structure and Decay Data: Theory and Evaluation**” during 20th February-3rd March, 2006 at ICTP, Trieste, Italy.

Worked as **Project student in Experimental Gamma Spectroscopy** at TIFR, Mumbai –October 2005-September 2006 under Dr R. Palit, Reader, Department of Atomic and Nuclear Physics.

Teaching Experience (Subjects/Courses Taught)

@ Delhi University 2008 Onwards:

Nuclear Physics-1 Group B XI (c) for M.Sc. Physics (Final) - Theory course

Nuclear Physics -PHYS 517 for M.Sc Physics (Final)- Theory course

Nuclear Physics-PHYS 537 for M.Sc Physics (Final)-Theory course

Experimental Nuclear Physics Practical -PHYS 518 for M.Sc Physics (Final)

Solid state & Optics Lab for M.Sc. Physics (Previous)

Electronic & Nuclear Lab for M.Sc. Physics (Previous)

Applied Thermodynamics-605 for M.Tech. in NST - Theory course

Experimental Practical Laboratory-1 for M.Tech. in Nuclear Science & Technology

@ **Indian Institute of Technology Roorkee (2003-2008):**

M. Sc. Nuclear Physics (Previous & Final) Laboratory

B. Tech. I Tutorials Physics course-I and II and Experimental Laboratory

ACADEMIC & OTHER ACTIVITIES

ACADEMIC

Member of Department Executive Council (EC) 2008-2009,
Department of Physics & Astrophysics, University of Delhi
Member of Time-Table Committee , 2008-2009, 2010-2011
Department of Physics & Astrophysics., University of Delhi
Member of Department Research Council (DRC), 2010-
2011, Department of Physics & Astrophysics, University of
Delhi

Member of Committee of Courses, 2010-2012,
University of Delhi

Member of write-off Committee , 2011- till, Department of
Physics, University of Delhi,

Member of Board of Research Studies (Sciences),2012-14,
University of Delhi

Member of PICC, Indian National Gamma Array, 2008-till,
INDIA

Public Service / University Service / Consulting Activity

Department Representative for “**Delhi University Smoke Free
Project**” during 2008-2009 Department of Physics and
Astrophysics, University of Delhi, Delhi.

Department Representative for **Educational Tour to IUCCA,
NCRA and GMRT**, Pune organized by Department of Physics
and Astrophysics, University of Delhi, 1 -9 January, 2009

Vice President in Physics Association 2004-05, Deptt. of
Physics, IIT Roorkee

Participation in National Cadet Core (N.C.C.) A Certificate
1995, **National Service Scheme (N.S.S)**-attended N.S.S Camp
from 27th-30th December, 1999 under the theme of “*Youth For
Healthy Society*” and got the Best Volunteer N.S.S. College
Color. **Entrepreneurship Awareness Camp** from 30th August-
1st September, 1999 organized by STEP Himachal Pradesh
Shimla-5.

Science Exhibition *during Golden Jubilee Celebration* in 1999 at
Vallabh Govt. College Mandi, HP

Student Editor for Science Section of the Magazine “*VIPASA*”
Session 1999-2000 Vallabh Govt. College Mandi (H.P.).

INVITED TALKS

- 1 **Beautiful Phase of Nuclear Rotation in Transition Nuclei; a competition between special coupled system and collective**, *Recent Trends in Nuclear structure and its implication in Astrophysics*" IOP Bhubaneswar, Puri India, 04-08 January, 2016.
- 2 **Tilted Axis cranking**, *Experimental Techniques in Gamma Spectroscopy (School)*, IUAC, New Delhi India, 25-29 April, 2016
- 3 **Spin and Parity Assignment of Nuclear States**, *2nd DAE BRNS ENSDD Workshop*" HBCSE-TIFR, Mumbai India, 29-04 March, 2016
- 4 **Magnetic Rotational Band crossing in A=135 and 110 region-role of nucleons in MR band crossing**, "*Frontiers in Gamma-ray spectroscopy FIG12*", Inter University Accelerator Centre (IUAC), Delhi India, 16-22 March 2012.
- 5 **Transitional Nuclei A=130 region: E(5) dynamical point symmetry**, *FROINTER IN GAMMA RAY SPECTROSCOPY (FIG09)*, TIFR, Mumbai India, March 02-04 2009
- 6 **Transitional Nuclei** "*Nuclear Yrast and Near Yrast States –YRAST, 09*" Department of Physics, Indian Institute of Technology Roorkee -247667, Oct 24-30, INDIA-2009
- 7 **Gamma-ray spectroscopy; Planning of an experiment in Nuclear physics**, Summer School, BHU, Varanasi India, 12-16 Sept 2011
- 8 **Analyzing Nuclear Experiments**, SERC School, IIT Roorkee, Roorkee India, 20-24 Feb 2012
- 9 **Transitional Nuclei: High spin states and critical behaviour**, *DAE Nuclear Physics Symposium 2008, IIT Roorkee*, Roorkee India, 21-26 December, 2008
- 10 **Half life measurement of 27/2⁻ negative parity bandhead state of a Magnetic Rotational band in ¹⁹⁷Pb**, "*Nuclear Structure and Decay Data: Theory and Evaluation*" Miramare (ICTP) -Trieste, Italy, 20th February-3rd March, 2006
- 11 **Superdeformed Magic numbers: Empirical evidences**, **SERC School "Mean field description of Nuclei"**, I.I.T Bombay, Mumbai India, 15th March –03rd April,

Honors & Awards

- **Gold Medal** for getting First position in M. Sc. Physics-2002 in Himachal Pradesh University.
- Merit's Certificate in B. Sc. 2000 getting 6th position in Himachal Pradesh University.
- Merit's certificate in Metric and +2 in Himachal Pradesh Board of School Education, Dharamshala
- Senior Research Fellow, **Council of Scientific and Industrial Research** (Govt. of India): April 2007 to March 2008.
- Senior Research Fellow, **Ministry of Human Resource Development** (Govt. of India): January 2005 to December 2006.

- Junior Research Fellow, **Ministry of Human Resource Development** (Govt. of India): January 2003 to December 2004.
- Indo-US Research Fellow, **Indo-US Science & Technology Forum**, 25 November 2013 to 22 November 2014.

CONFERENCES/SEMINAR/WORKSHOP ORGANISATION

Organizer

Orientation Programme and public lecture on “**Nuclear Energy for National Development**” held on 20th October 2010 at Department of Physics & Astrophysics, University of Delhi, INDIA
DAE Symposium on Nuclear Physics to be held during 2nd to 7 Dec. 2012 at University of Delhi INDIA

Member of local Organizer committee

DAE Symposium on Nuclear Physics held during 21- 26 December at Indian Institute of Technology Roorkee, INDIA.
 International Conference on Electroceramics (ICE-2009) held during December 13-17, 2009 at University of Delhi, INDIA
 International Conference and Workshop on Nanostructured Ceramics and other Nanomaterials (ICWNCN) was organized during March 13-16, 2012 at University of Delhi, INDIA.
 WAMFER 2012 - Workshop on Advanced Materials for Future Energy Requirements to be held 29 Nov – 1 Dec. 2012 at University of Delhi, INDIA
 School cum Workshop on “**Nuclear Yrast and Near Yrast States – YRAST,09**” held during Oct 24-30, 2009 at IIT Roorkee., INDIA
 Workshop on “**Frontiers in Gamma-ray spectroscopy**” held during March 02-04, 2009, at TIFR, Mumbai, INDIA
 Workshop “**Shell Model to Effective Field Theory: Lectures on Current Trends in Nuclear Physics**” held on 28th April, 2006 at TIFR, Mumbai, INDIA
 International workshop “**Nuclear Structure Physics at the extreme: New directions**” held during 21-24 March, 2005 at Himachal Pradesh University Shimla, INDIA.
International Workshop on Theoretical High Energy Physics (IWTHEP) held during 15th-20th March, 2007 at IIT Roorkee, INDIA

Research Guidance

A Ph.D Students

S.N	Name	Title	Date of Registration	Status
1.	Ritika Garg	<i>Magnetic Rotation and Magnetic Rotational Band Crossing in A=135 region.</i>	Sept 2007	Completed
2.	Naveen Kumar	<i>Nuclear Structure in Transitional Nuclei.</i>	Feb 2011	In progress
3.	K. Rojeeta	<i>High Spin Features of Nuclear Structure</i>	Oct. 2012	In Progress
4	Neelam	Experimental nuclear structure	Oct. 2014	In Progress

B. M.Sc./B.Sc. Students (Desertion/Summer projects)

S.N.	Name	Title	Year	Status
1.	Ms Jasneet Kaur & Mr Sushil Kumar (M.Sc) Department of Physics &	CHARACTERISTICS OF HYPER-PURE GERMANIUM (HPGe) CLOVER DETECTOR (INGA 2008 ARRAY)	April-July 2008	Completed

	Astrophysics, University of Delhi			
2.	Ms Debnandini Mukherjee (B.Sc.)Hindu College, University of Delhi	Detection of gamma photon using scintillation Detector	April-July 2008	Completed
3.	Ms Jasmeet Kaur & Rajbir kaur (M.Sc.) Department of Physics & Astrophysics, University of Delhi	Efficiency and Addback factor for the INGA 2010.	April-July 2010	Completed
4.	Mr Umesh Kumar Department of Physics & Astrophysics, University of Delhi	Study of fission fragment yield populated by multi-fragmentation reaction	Jan-April 2011	Completed
5.	Ms Lalita Devi Department of Physics & Astrophysics, University of Delhi	GAMMA RAY SPECTROSCOPY OF ^{133}Xe AND ^{136}Ba POPULATED BY FUSION EVAPORATION REACTION	Jan-April 2011	Completed
6.	Ms Bharati Jaiswal Department of Physics & Astrophysics, University of Delhi	Study of Characteristics of La2Br3Ce Scintillation Detector	Jan-April 2011	Completed
7.	Anuj Nigam, Debmalya Ganguly Meka Uma Reddy PM Dimensions Pvt. Ltd	Radiation Detectors for nuclear safety aspects	October – December 2011	Completed
8	Ms Jyoti Sharma Department of Physics & Astrophysics, University of Delhi	Study of spin and parity of nuclear states	Jan-April 2012	Completed
9.	Ms Anshu Department of Physics & Astrophysics, University of Delhi	Study of polarization asymmetry ---single and integrated clover detectors for TIFR INGA	Jan-April 2012	Completed
10.	Mr Rahul Yadav Department of Physics & Astrophysics, University of Delhi	Lifetime measurements of nuclear state using pulse beam and centroid shift method	Jan-April 2012	Completed
11	Ms Neelam Department of Physics & Astrophysics, University of Delhi	Study of nuclear excited states using neutron capture (n,γ) reaction.	Jan-April 2013	Completed
12	Mr Raj Kumar Department of Physics & Astrophysics, University of Delhi	Calculation of single particle energy state using Woods-Saxon potential in shell model	Jan-April 2013	completed
13	Ms Sayna Matta Department of Physics & Astrophysics, University of Delhi	Nuclear Structure via Gamma-ray Spectroscopy	Jan -April 2016	Completed

Research Collaborations

Dr. Rudrajyoti Palit, Department of Nuclear & Atomic Physics, Tata Institute of Fundamental Research

Dr. H.P. Sharma, Department of Physics and Astrophysics, Banaras Hindu University, Varanasi

Research Projects

S.No	Title of Research Project	Major/ Minor (as per UGC Project guidelines	PI/ co-PI/ joint PI	Period	Total Grants sanctioned & received (in rupees); Name of the Funding Agency	National/ Inter-national
1.	Magnetic Rotational Band crossing...near A=135	Major	PI	2009-2012	Above 5 Lakhs	National
2.	Resistive Plate Chamber, Development, Fabrication & Testing and Neutrino Simulation studies for INO-ICAL Experiments	Major	Co-PI	2011 - onwards	Approx 20 Lakhs	National
3	Study of near transitional nuclei: low spin states, Isomers and Critical Point symmetry	Major	PI	2012-onwards	Above 5 lakh	National
4	R & D Doctoral Research Programme Delhi University	Minor	PI	2010-11	Above 2 lakh	National
5	R & D Doctoral Research Programme Delhi University	Minor	PI	2011-12	Above 2 lakh	National
6	R & D Doctoral Research Programme Delhi University	Minor	PI	2012-13	Above 2 lakh	National
7	R & D Doctoral Research Programme Delhi University	Minor	PI	2014-15	Above 1 lakh	National

8	R & D Doctoral Research Programme Delhi University	Minor	PI	2015-16	Above 2 lakh	National
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List of Publications

A) In Journals

Publications in Refereed Journal [Year 2006 to till date]

1. *Low-lying states near the $I=6^+$ isomers in ^{108}Ag* , J. Sethi, R .Palit, S.Saha, T.Trivedi, G.H.Bhat, J.A.Sheikh, P.Datta, J.J.Carroll, S.Chattopadhyay, R.Donthi, U.Garg, S.Jadhav, H.C.Jain, S.Karamian, **S. Kumar**, M.S.Litz, D.Mehta, B.S.Naidu, Z.Naik, S.Sihotra, P.M.Walker, J .Phys.G Nucl. Part. Phys 43 , 28 (2016) , [Impact Factor = 2.777] .
2. *Negative-parity high-spin states and a possible magnetic rotation in ^{135}Pr* , Ritika Garg, **S. Kumar** . Mansi Saxena, Savi Goyal, Davinder Siwal, Sunil Kalkal, S. Verma, R. Singh, S.C. Pancholi, R. Palit, Deepika Choudhury, S. Ghugre, G. Mukherjee, R. Kumar, R.P.Singh, S.Muralithar, R.K.Bhowmik and S. Mandal, Phys.Rev. C **92**, 054302 (2015), [Impact Factor = 3.733],
3. *Spectroscopy of the low-lying states near the high spin isomer in ^{108}Ag* , J.Sethi, R.Palit, S.Saha, T.Trivedi, G.H.Bhat, J.A.Sheikh, P.Datta, J.J.Carroll, S.Chattopadhyay, R.Donthi, U.Garg, S.Jadhav, H.C.Jain, S.Karamian, **S.Kumar**, M.S.Litz, D.Mehta, B.S.Naidu, Z.Naik, S.Sihotra, P.M.Walker, Acta Phys. Polonica B, 46, 703 (2015).
4. *High spin band structure of ^{85}Sr* , **S. Kumar** et al., Physical Review C 90, 024315 (2014) [Impact Factor = 3.733]
5. *Evidences for magicity in superdeformed shapes*, **Suresh Kumar**, Pramana Vol. 80. Issue 5 , 931 (2014) [Impact Factor = 0.64] .
6. *Correlation between ground state lifetime and valence nucleons for isotopic chains*, V. Kumar, **S. Kumar**, Gangopadhyay, D. Negi , Modern Physics letter A Vol. 29, issue 20, 1450102 (2014) , [Impact Factor = 1.198]
7. *High spin structure in $^{130,131}\text{Ba}$* , N.Kaur, A.Kumar, G.Mukherjee, A.Singh, S.Kumar, R.Kaur, V.Singh, B.R.Behera, K.P.Singh, G.Singh, H.P.Sharma, **S. Kumar**, M.K.Raju, P.V.M.Rao, S.Muralithar, R.P.Singh, R.Kumar, N.Madhvani, R.K.Bhowmik, Eur. Phys. J. A 50, 5, (2014), [Impact Factor = 2.736]
8. *Nuclear Data Sheets for $A = 215$* , B.Singh, G.Mukherjee, D.Aabriola, S.K.Basu, P.Demetriou, A.Jain, **S. Kumar**, S.Singh, J.Tuli, Nucl.Data Sheets 114, 2023 (2013) ,[Impact Factor = 3.353].
9. *Structure of nearly degenerate dipole bands in ^{108}Ag* , J.Sethi, R.Palit, S.Saha, T.Trivedi, G.H.Bhat, J.A.Sheikh, P.Datta, J.J.Carroll, S.Chattopadhyay, R.Donthi, U.Garg, S.Jadhav, H.C.Jain, S.Karamian, **S. Kumar**, M.S.Litz, D.Mehta, B.S.Naidu, Z.Naik, S.Sihotra, P.M.Walker, Phys. Lett. B 725,85 (2013),[Impact Factor = 6.019].

10. *High spin states in ^{135}La* , Ritika Garg, **S. Kumar**, Mansi Saxena, Savi Goyal, Davinder Siwal, S. Verma, R. Pa Sudipta Saha, J. Sethi, Sushil K. Sharma, T. Trivedi, S. K. Jadav, R. Donthi, B. S. Naidu, and S. Mandal, Phys. Rev. **87**, 034317 (2013), [Impact Factor = 3.881] .
11. *Multiple antimagnetic rotation bands in odd-A ^{107}Cd* , Deepika Choudhury, A. K. Jain, G. Anil Kumar, **Suresh Kumar**, Sukhjeet Singh, P. Singh, M. Sainath, T. Trivedi, J. Sethi, S. Saha, S. K. Jadav, B. S. Naidu, R. Palit, H. C. Jain, Chaturvedi, and S. C. Pancholi, Phys. Rev. C **87**, 034304 (2013), [Impact Factor = 3.881] .
12. *Empirical evidence for magic numbers of superdeformed shapes*, Neha Sharma, H.M. Mittal, **Suresh Kumar**, A Jain, Phys. Rev. C **87**, 024322 (2013). [Impact Factor = 3.881].
13. *Experimental investigation of shell-model excitations of ^{89}Zr up to high spin*, S. Saha, R. Palit, J. Sethi, T. Trivedi, P. Srivastava, **S. Kumar**, B. S. Naidu, R. Donthi, S. Jadhav, D. C. Biswas, U. Garg, A. Goswami, H. C. Jain, P. K. Joshi, G. Mukherjee, Z. Naik, S. Nag, V. Nanal, R. G. Pillay, S. Saha, and A. K. Singh, Phys. Rev. C **86**, 034315 (2012), [Impact Factor = 3.715].
14. *Shears mechanism in ^{109}In* , D. Negi, T. Trivedi, A. Dhal, **S. Kumar**, V. Kumar, S. Roy, M. K. Raju, S. Appannabalu G. Mohanto, J. Kaur, R. K. Sinha, D. Choudhury, D. Singh, R. Kumar, R. P. Singh, S. Muralithar, A. K. Bhati, S. Pancholi, and R. K. Bhowmik, Phys. Rev. C **85**, 057301 (2012) , [Impact Factor = 3.715].
15. *Small quadrupole deformation for the dipole bands in ^{112}In* , T. Trivedi, R. Palit, J. Sethi, S. Saha, **S. Kumar**, Z. Naik, V. V. Parkar, B. S. Naidu, A. Y. Deo, A. Raghav, P. K. Joshi, H. C. Jain, S. Sihotra, D. Mehta, A. K. Jain, D. Choudhury, D. Negi, S. Roy, S. Chattopadhyay, A. K. Singh, P. Singh, D. C. Biswas, R. K. Bhowmik, S. Muralithar, R. P. Singh, R. Kumar, K. Rani, Phys. Rev. C **85**, 014327 (2012), [Impact Factor = 3.715].
16. *Shape evolution in Odd-A ^{137}Pm* , A. Dhal; R. K. Sinha; D. Negi; T. Trivedi; M. K. Raju; D. Choudhury; G. Mohan **S. Kumar**; J. Gehlot; R. Kumar; S. Nath; S. S. Ghugre; R. P. Singh; J. J. Das; S. Muralithar; N. Madhavan; J. Gupta; A. K. Sinha; A. K. Jain; I. M. Govil; R. K. Bhowmik; S. C. Pancholi; L. Chaturvedi, Eur. Phys. J. A **48**, (2012), [Impact Factor = 2.043] .
17. *Multinucleon transfer reactions for the $^{28}\text{Si}+^{90,94}\text{Zr}$ systems in the region below and near the Coulomb barrier*, S. Kalkal, S. Mandal, N. Madhavan, A. Jhingan, E. Prasad, R. Sandal, S. Nath, J. Gehlot, R. Garg, G. Mohan M. Saxena, S. Goyal, S. Verma, B. R. Behera, **S. Kumar**, U. D. Pramanik, A. K. Sinha, R. Singh, Phys. Rev. C **83**, 054601 (2011) [Impact Factor = 3.331]
18. *Structural change of the unique-parity $\pi h_{11/2} \otimes \nu h_{11/2}$ configuration in ^{134}Cs* H. Pai, G. Mukherjee, A. Raghav, R. Palit, Bhattacharya, S. Chanda, T. Bhattacharjee, S. Bhattacharyya, S. K. Basu, A. Goswami, P. K. Joshi, B. S. Naidu, Sushil K. Sharma, A. Y. Deo, Z. Naik, R. K. Bhowmik, S. Muralithar, R. P. Singh, **S. Kumar**, S. Sihotra, and D. Mehta Phys. Rev. C **84**, 041301 (2011) (Rapid Communication) [Impact Factor = 3.331]
19. *A semi-classical approach to signature splitting and signature inversion in odd-odd nuclei*, V. Kumar, **Suresh Kumar**, Sushil Kumar, Z. Hasan, B. S. Koranga, D. Kumar, D. Negi, L. Angus, Int. J. Mod. Phys. **E20**, 1455 (2011). [Impact Factor = 1.127]
20. *Evidence of antimagnetic rotation in odd-A ^{105}Cd* D. Choudhury, A. K. Jain, M. Patial, N. Gupta, P. Arumugam, A. Dhal, R. K. Sinha, L. Chaturvedi, P. K. Joshi, T. Trivedi, R. Palit, **S. Kumar**, R. Garg, S. Mandal, D. Negi, G. Mohan

- S.Muralithar, R.P.Singh, N.Madhavan, R.K.Bhowmik, S.C.Pancholi, Phys.Rev. C **82**, 061308 (2010) (Rapid Communication) [Impact Factor = 3.331]
21. *Channel coupling effects on the fusion excitation functions for $^{28}\text{Si}+^{90,94}\text{Zr}$ in sub- and near-barrier regions*, S.Kalki, S.Mandal, N.Madhavan, E.Prasad, S.Verma, A.Jhingan, R.Sandal, S.Nath, J.Gehlot, B.R.Behera, M.Saxena, S.Goyal, D.Siwani, R.Garg, U.D.Pramanik, **S.Kumar**, T.Varughese, K.S.Golda, S.Muralithar, A.K.Sinha, R.Singh, Phys.Rev. C **81**, 044610 (2010)
 22. *Band structure and shape coexistence in $^{135}_{56}\text{Ba}_{79}$* **S.Kumar**, A.K.Jain, A.Goel, S.S.Malik, R.Palit, H.C.Jain, I.Mazumdar, P.K.Joshi, Z.Naik, A.Dhal, T.Trivedi, I.Mehrotra, S.Appannababu, L.Chaturvedi, V.Kumar, R.Kumar, D.Negi, R.P.Singh, S.Muralithar, R.K.Bhowmik, S.C.Pancholi, Phys.Rev. C **81**, 067304 (2010).
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10. *Structure of Dipole Bands in ^{112}In : Through Lifetime Measurement*, T. Trivedi, R. Palit, J. Sethi, S. Saha, **S. Kumar**, Z. Naik, V. V. Parkar, B. S. Naidu, A. Y. Deo, A. Raghav, P. K. Joshi, H. C. Jain, S. Sihotra, D. Mehta, A. K. Jain, D. Choudhury, D. Negi, S. Roy, S. Chattopadhyay, A. K. Singh, P. Singh, D. C. Biswas, R. K. Bhowmik, S. Muralithar, R. P. Singh, R. Kumar, K. Rani., J. Phys.: Conf. Ser. **381** 012061 (2012).
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1. *High Spin negative parity states in ^{135}Pr* , **S.Kumar** in Ritika *et al.*, DAE Nuclear Physics Symposium, Vol. 60, 96 (2015).
2. *Polarization measurements and Re-investigation of the intermediate states in ^{86}Rb* , **S. Kumar et al.**, DAE Nuclear Physics Symposium, Vol. 60, 198 (2015).
3. *Geometry of Magnetic Rotational (MR) band-crossing in MR Phenomenon*, **S. Kumar** in R. Devi *et al.*, DAE Nuclear Physics Symposium, Vol. 60, 212 (2015).
4. *Fabrication of ^{54}Cr target on ^{197}Au backing*, **S. Kumar** in Naveen Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 60, 1006 (2015)
5. *Mixing Ratio of gamma-rays in ^{85}Sr nucleus from the R_{dco} and polarization asymmetry measurements*, **S. Kumar** in Neelam *et al.*, DAE Nuclear Physics Symposium, Vol. 60, 236 (2015).
6. *High Spin States in ^{86}Sr* , **S. Kumar** in Naveen Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 136 (2014).
7. *First experimental signature of twin-shears mechanism in odd-odd ^{112}In* , **S. Kumar** in J.Sethi *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 118 (2014)
8. *Life time measurements for positive parity dipole bands in ^{85}Sr using DSAM*, **S. Kumar** in Naveen Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 86 (2014).
9. *Investigation of dissipation in fission of $^{220,222,224}\text{Th}$ isotopes formed in $^{16}\text{O}+^{204,206,208}\text{Pb}$ fusion reactions*, **S. Kumar** in Sevi Goyal *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 592 (2014).
10. *High spin structure in ^{140}Sm* , **S.Kumar** in N. Sahota *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 186 (2013).
11. *Structure of positive parity bands in odd-odd ^{108}Ag* , **S. Kumar** in J. Sethi *et al.*, DAE Nuclear Physics Symposium, Vol. 59, 238 (2013).
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14. *Three-quasiparticle Bands in Iodine Nuclei*, **S. Kumar** in S. Chakraborty *et al.*, DAE Nuclear Physics Symposium, Vol. 58, 284 (2013).
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16. *A Role of Valence Particles Number Equal to 20*, **S. Kumar** in V. Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 378 (2012).
17. *De-excitation of hot rotating nuclei near proton dripline*, **S. Kumar** in J. Ray *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 368 (2012).
18. *Experimental Investigation Shell Model Excitations of ^{89}Zr up to High Spin and its Comparison with $^{88,90}\text{Zr}$* , **S. Kumar** in S. Saha *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 360 (2012).
19. *Structure of ^{108}Ag at Low and Medium Spin*, **S. Kumar** in J. Sethi *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 360 (2012).
20. Polarization measurements of ^{127}I , **S. Kumar** in S. Charkraborty *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 276 (2012).
21. *Novel band structure of odd-A ^{107}Cd* , **S. Kumar** in D. Choudhury *et al.*, DAE Nuclear Physics Symposium, Vol. 57, 258 (2012).
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24. *Effects of shell closure of target on neutron multiplicity for the $^{28}\text{Si} + ^{204,206,208}\text{Pb}$* , **S. Kumar** in S. Goyal *et al.*, DAE Nuclear Physics Symposium, Vol. 56, 606 (2011).
25. *Shape transition from prolate to oblate in exotic Cs and La isotopes near proton drip line*, **S. Kumar** in J. Ray *et al.*, DAE Nuclear Physics Symposium, Vol. 56, 230 (2011).
26. *Chiral Partner Bands in ^{99}Tc* , **S. Kumar** in R. Shinha *et al.*, DAE Nuclear Physics Symposium, Vol. 56, 244 (2011).
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31. *Particle-hole Symmetry the Characteristic of Spherical- configuration Rule out Theoretical Prediction of Shell Quenching in $N=82$* , **S. Kumar** in V. Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 56, 262 (2011).
32. *Investigation of fission reaction dynamics and neutron multiplicity in the mass region ~ 200* , **S. Kumar** in

- Sevi Goyal *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 31 (2010).
33. *A Semi-classical Approach to Signature Splitting and Signature Inversion in Odd-Odd Nuclei*, **S. Kumar** in V. Kumar *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 134 (2010).
 34. *In beam spectroscopy of negative parity states in ^{135}Pr* , **S. Kumar** in Ritika Garg *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 64 (2010).
 35. *Role of neutrons and protons in MR bands in ^{137}Nd and ^{137}Pr nuclei*, **S. Kumar** in Deepika Choudhary *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 66 (2010).
 36. *Study of high spin states of very neutron-deficient La, Ba, Cs, Xe nuclei near proton-drip line*, **S. Kumar** in J. Ray *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 52 (2010).
 37. *High spin structures in ^{109}In* , **S. Kumar** in D. Negi *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 48 (2010).
 38. *Nuclear Structure in ^{98}Tc : Linear Polarization and DCO ratio measurements.*, **S. Kumar** in R. Shinha *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 42 (2010).
 39. *Projected shell model calculations and its comparison with measured shape evolution in ^{75}Br* . **S. Kumar** in T. Trivedi *et al.*, DAE Nuclear Physics Symposium, Vol. 55, 40 (2010).
 40. *High spin spectroscopy of ^{131}Ba* , **S. Kumar** in N. Kaur *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 10 (2009).
 41. *High spin structure of ^{133}Cs* , **S. Kumar** in A. Raghav *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 88 (2009).
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 43. *Shape transition in ^{75}Kr and ^{75}Br nuclei*, **S. Kumar** in T. Trivedi *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 60 (2009).
 44. *High spin structures in ^{107}In* , **S. Kumar** in D. Negi *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 68 (2009).
 45. *Shape behaviour at high spin in ^{137}Pm* , **S. Kumar** in A. Dhal *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 92 (2009).
 46. *Shape Co-existence in ^{135}Ba* , **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 54, 90 (2009).
 47. *Transitional Nuclei: High Spin States and Critical behavior*, **S. Kumar**, DAE Nuclear Physics Symposium, Vol. 53, 184 (2008).
 48. *Particle Identification in CsI(Tl) detectors*, **S. Kumar** in R. Palit *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 749 (2008).
 49. *Preparation of Multilayer Calcium Target*, **S. Kumar** in D. Negi *et al.*, DAE Nuclear Physics

Symposium, Vol. 53, 703 (2008).

50. *Breakup fusion in ${}^6\text{Li} + {}^{144}\text{Sm}$* , **S. Kumar** in P. K. Rath *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 477 (2008).
51. *Suppression of complete fusion in ${}^6\text{Li} + {}^{144}\text{Sm}$* , **S. Kumar** in P. K. Rath *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 385 (2008).
52. *Spectroscopy of ${}^{37}\text{Ar}$, ${}^{36}\text{Cl}$ and the role of fp orbitals*, **S. Kumar** in S. Ray *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 353 (2008).
53. *Investigation of Positive Parity Degenerate Dipole Bands in ${}^{133}\text{Ce}$* , **S. Kumar** in R. Palit *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 323 (2008).
54. *High Spin States in ${}^{155}\text{Ho}$* , **S. Kumar** in G. Jnaneshwari *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 271 (2008).
55. *Positive Parity High Spin States of ${}^{137}\text{Pr}$* , **S. Kumar** in A. K. Jain *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 251 (2008).
56. *Structures of Dipole bands of ${}^{107}\text{In}$* , **S. Kumar** in S. Sihotra *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 235 (2008).
57. *High Spin States in ${}^{137}\text{Pm}$* , **S. Kumar** in A. Dhal *et al.*, DAE Nuclear Physics Symposium, Vol. 53, 221 (2008).
58. *Study of Shape effects and Magnetic Rotation in $N=79$ and 47 nuclei*, **S. Kumar**, DAE Nuclear Physics Symposium, Vol. 52, (2007).
59. *The structure of ${}^{136}\text{Ba}$ using HI reaction*, **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 52, (2007).
60. *High Spin states in ${}^{106}\text{In}$* , **S. Kumar** in A. Deo *et al.*, DAE Nuclear Physics Symposium, Vol. 52, (2007).
61. *GDR decay from Hot rotating ${}^{188}\text{Os}$* , **S. Kumar** in I. Mazumdar *et al.* DAE Nuclear Physics Symposium, Vol. 51, (2006).
62. *High Spin states in ${}^{139}\text{Pm}$* , **S. Kumar** in A. Dhal *et al.* DAE Nuclear Physics Symposium, Vol. 51, (2006).
63. *High Spin Structure of ${}^{139}\text{Nd}$* , **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 51, (2006).
64. *Study of Positive Parity Bands in ${}^{137}\text{Pr}$* , **S. Kumar** in Priyanka Agarwal *et al.*, DAE Nuclear Physics Symposium, Vol. 51, (2006).
65. *Half life measurements of $27/2$ negative parity band head state of a magnetic Rotational band in ${}^{197}\text{Pb}$* , **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 51, (2006).
66. *High Spin states in ${}^{85}\text{Sr}$* , **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 50, 245 (2005).
67. *Nuclear Softness parameter for Superdeformed bands*, **S. Kumar** *et al.*, DAE Nuclear Physics Symposium, Vol. 47B, 130 (2004).

68. *Superdeformed Magic Numbers: Empirical Evidences*, S. Kumar et al., DAE Nuclear Physics Symposium, Vol. 46B,104 (2003).

Total Publication Profile

Summary of Publications

Year 2003-2016

Reviewed Journals/Proceeding = 50+, Conferences and symposia 60+ , Invited talks and Seminars = 8 ,Lectures in workshops/Schools=10

WORKSHOPS/SYMPOSIA/SERC SCHOOLS ATTENDED

- 1 *Experimental Techniques in Gamma Spectroscopy (School)*, IUAC, New Delhi India, 25-29 April, 2016
- 2 *ENSDD week India -2016*, Mumbai India, 23-27 Feb, 2016
- 3 *Recent Trends in Nuclear structure and its implication in Astrophysics"* IOP Bhubaneswar, Puri India, 04-January, 2016.
- 4 *DAE Nuclear Physics Symposium 2015*, Prasanthi Nillayam, Andhra India, 7-11 December, 2015
- 5 *Refresher Course in Physics*, HRDC, JNU Delhi India, 05-30 October 2015.
- 6 *Recent trends in nuclear Physics*, IUAC, New Delhi India, 14 -15 September 2015
- 7 *Gordon Research conference on Nuclear Chemistry (International Conference)*, Colby Sawyer College, N London, NH USA, May 31—June 5, 2015
- 8 *Nuclear Data Week 2014*, NNDC, BNL USA, 5-11 November 2014.
- 9 *DAE Nuclear Physics Symposium 2012*, Delhi University, Delhi India, during 7-11 December, 2012
- 10 *Nuclear Data decay and Structure 2012*, VECC Kolkata, 26-29 November 2012
- 11 *NUSTAR week 2012*, VECC Kolkata, 05-10 November 2012
- 12 International Summer School for Advance Studies “ *Dynamics of open nuclear systems*”, IFIN-NH, Romania, 09-20 July 2012.
- 13 “*Frontiers in Gamma-ray spectroscopy FIG12*” , Inter University Accelerator Centre (IUAC), Delhi India, 16-22 March 2012.
- 14 *DAE Nuclear Physics Symposium 2011*, Andhra University, Andhra Pradesh India, 26-30 December, 2011
- 15 *Refresher Course in Physics (RC-239)*, Academic staff College Shimla India, 25 July August -13 August 2011.
- 16 *First International school on Nuclear Security*, ICTP Trieste, Italy, 10- 23 April 2011.
- 17 Training Programme on “*Radiological Safety Aspects in the Research Application of Ionizing Radiation*” University of Delhi, Delhi India, 1-3 December 2010.
- 18 *Orientation Course (98)*, Academic staff College Shimla India, 19 August -15 September 2010.
- 19 Summer School of Physics 2010 on “ *Exotic Nuclei and Nuclear/Particle Astrophysics (III) : From nuclei to stars*”, , Sinaia, Romania , June 20-July 3, 2010
- 20 *FROINTER IN GAMMA RAY SPECTROSCOPY (FIG09)*, TIFR, Mumbai India, March 02-04 2009.
- 21 “*Nuclear Yrast and Near Yrast States –YRAST, 09*” Department of Physics, Indian Institute of Technology Roorkee -247667, Oct 24-30, INDIA-2009

- 22 *DAE Nuclear Physics Symposium 2008, IIT Roorkee, Roorkee India, 21-26 December, 2008*
- 23 *DAE Nuclear Physics symposium 2007, Sabalpur University, Orissa India, 11- 16 December, 2007.*
- 24 *"Nuclear Structure and Decay Data: Theory and Evaluation"* Miramare -Trieste, Italy, 20th February-3rd March, 2006.
- 25 *DAE Nuclear Physics symposium 2006, Maharaja Sayajirao University of Baroda, Vadodara India, 11- 16 December, 2006.*
- 26 *DAE Nuclear Physics symposium 2005, Bhabha Atomic Research Centre, Mumbai India, 12- 16 December, 2005.*
- 27 *"Nuclear Structure Physics at the extreme: New directions"* Himachal Pradesh University Shimla, India , 21-24 March, 2005.

- 28 *"Nuclear Structure & Dynamics"* VECC Kolkata, June 22-26th June, 2005.
- 29 *"Relativistic Mean Field Theory"* at Institute of Physics, Bhubaneswar India, 26th –31st July 2004.
- 30 *DAE Nuclear Physics symposium 2004, Banaras Hindu University, Varanasi India, 06-10 December, 2004.*
- 31 SERC School *"Mean field description of Nuclei"* I.I.T Bombay, Mumbai India, 15th March –03rd April, 2004.
- 32 Workshop on *"Physics with Indian National Gamma Array"* at IUAC New Delhi India, 16th-17th September, 2003.
- 33 *DAE Nuclear Physics symposium 2003, Bhabha Atomic Research Centre, Mumbai India, 08- 12 December, 2003.*