

Curriculum-Vitae

1. **Name:** DR. BIRBIKRAM SINGH
2. **Present address:** #2627/1, JOURIAN BHATTIAN, PATIALA-147001 (PUNJAB)
Phone: +91-85282-84405, 0175-2204928
Email ID: birbikram.singh@gmail.com
3. **Address for correspondence:** ASSISTANT PROFESSOR, DEPARTMENT OF PHYSICS, SRI GURU GRANTH SAHIB WORLD UNIVERSITY, FATEHGARH SAHIB-140406, PUNJAB
4. **Date of Birth:** 15-09-1976
5. **Marital status :** Married
6. **Nationality :** Indian

7. **Academic qualifications:**
 - a) **Ph.D. in Nuclear Physics**
Thesis topic: *“Study of the effects of nuclear structure and relative orientations in heavy ion reactions”*
Affiliation: School of Physics and Materials Science, Thapar University, Patiala
Year of completion: April 2009
 - b) **M.Sc. in Physics Hons.**
Affiliation: Department of Physics, Panjab University, Chandigarh, India
Year of completion: 2001 % of marks: 68.70

8. **Young Scientist project award (2011):**
Fast track proposal entitled **“Collective clusterization in very light mass nuclear systems formed in heavy ion collisions”** for Young Scientists awarded by Department of Science & Technology (DST), New Delhi.

9. Computer Awareness:

- a) Programming: FORTRAN for scientific applications.
- b) Platforms: Windows and Linux.
- c) Proficiency in application software: MS-Office, LaTeX, Microcal Origin.
- d) Acquaintance: PDF, EPS files in LaTeX.

10. Details of employment and Nature of Duties:

Organization/ Institute	Position held	Nature of duties / work	Date of joining	Date of leaving
Sri Guru Granth Sahib World University, Fatehgarh Sahib	Assistant Professor	Teaching and Research	August 04, 2011	-till date-
Institute of Physics, (an autonomous institute of DAE, GOI)	Research Associate	Research	June 17, 2009	June 17, 2011
Swami Vivekanand Institute of Engineering and Technology (SVIET), Patiala	Lecturer	Teaching and Research	June 10, 2008	May 12, 2009
Thapar University, Patiala	Teaching Assistant	Teaching/ Research	August, 2003	September, 2004
Department of Physics, Panjab University, Chandigarh	Project Fellow	Research	October 01, 2001	April 04, 2003

11. Fellowships received:

- a.) Young Scientist Fellowship awarded by Department of Science & Technology (DST), New Delhi, under Fast track scheme for Young Scientists, 2011.
- b.) Foreign travel fellowship under “International Travel Support Scheme” by DST, CSIR and INSA-CCSTDS to attend the international workshop, May 25-28, 2010 held at the “Université Libre de Bruxelles”, Brussels, Belgium.
- c.) Post-doctoral fellowship awarded by Institute of Physics, Bhubaneswar, June 2009-June 2011.
- d.) Teaching Assistantship awarded by SPMS, Thapar Inst. of Engg. and Tech., Patiala, August 2003-September 2004.
- e.) Project Fellowship awarded jointly by Deptt. of Physics, Panjab University, Chandigarh and Nuclear Science Centre, New Delhi, October 2001-April 2003.

12. Work Experience:

Research: ~ 12 Years

Teaching: ~ 09 Years

13. Talks Delivered:

a) Invited Talks:

- i) “Laser and Optical Fibres, and their Applications”- Quest Group of Institutes, S.A.S Nagar, September 09, 2011.
- ii) “Magnetic and Superconducting Materials, and their Applications”- Quest Group of Institutes, S.A.S Nagar, March 01, 2012.
- iii) “Major inventions of 20th century and their impact on human lives”- Quest Group of Institutes, S.A.S Nagar, October 09, 2012.
- iv) “Cluster radioactive-decays within the preformed cluster model using relativistic mean field theory densities” - *Contemporary Trends in Nuclear Physics*, **Aligarh Muslim University, India**, October 20-21, 2010.
- v) “Importance of preformation probability in cluster-radioactive decays using relativistic mean field theory within the preformed cluster model”- **Subatech, Laboratoire de Physique Subatomique et des Technologies Associees, Nantes, France**, June 03, 2010.
- vi) “Cluster radioactive decay within preformed cluster model using relativistic mean field densities”- **Institute for Theoretical Physics, JUSTUS-LIEBIG UNIVERSITAT GIESSEN, Germany**, June 01, 2010.
- vii) “Effects of nuclear structure and relative orientations in heavy ion reactions”- **Institute of Physics, Bhubaneswar, India**, April06, 2009.

b) Other talks in conferences/ seminars/ workshops:

- viii) “Importance of preformation probability in cluster-radioactive decays using relativistic mean field theory within the preformed cluster model”-*State of the*

Art in Nuclear Cluster Physics (SOTANCP), Université Libre de Bruxelles”, Brussels, Belgium, May 25-28, 2010.

- ix) “Fission and quasi-fission processes in the decay of hot and rotating compound nucleus $^{246}\text{Bk}^*$.”- *11th Punjab Science Congress*, Thapar University, Patiala, February, 2008.
- x) “Role of deformations and orientations in the cluster decay of ^{242}Cm nucleus.”-*11th Punjab Science Congress*, Thapar University, Patiala, February, 2008.
- xi) “Role of deformation and orientations in the fission decay of $^{246}\text{Bk}^*$.”- *National Conference on Emerging Trends in Engineering Materials*, Thapar Inst. of Engg. and Tech. (TIET), Patiala, February 1-3, 2007.
- xii) “Role of Angular Momentum in the Decay of Hot ^{48}Cr ”- *National conf. on Adv. in Condensed matter Physics*, Thapar Inst. of Engg. and Tech. (TIET), Patiala, 2005.
- xiii) “Fission decay of ^{48}Cr at higher incident energies”.- *National Conference on Materials and related Technologies*, Thapar Inst. of Engg. and Tech. (TIET), Patiala, September 2003.

14. Research/Scientific Visits Abroad:

- a) Prof. Dr. W. Schied, **Institute for Theoretical Physics, JUSTUS-LIEBIG UNIVERSITAT GIESSEN, Germany**, May 31 to June 02, 2010.
- b) Prof. Dr. Guy Royer, **Subatech Laboratoire de Physique Subatomique et des Technologies Associees, Nantes, France**, June 02 to June 05, 2010.

15. Self Evaluation

I completed my Ph.D. degree in the area of Theoretical Nuclear Physics, where Performed Cluster-decay Model (PCM) and Dynamical Cluster-decay Model (DCM) of Gupta and collaborators, based on well known Quantum Mechanical Fragmentation Theory (QMFT), have been advanced for studying the nuclear structure effects in heavy ion collision (HIC) problems. PCM pertains to ground-state decay of parent

nuclei whereas the DCM incorporates decay features of excited compound nuclei (CN) formed in HIC. I extended PCM to study the effects of deformations and orientations in exotic cluster radioactivity. As large numbers of experiments are being planned at extreme conditions of temperature to study the exotic behaviour of nuclear systems, availability of temperature dependent nuclear potentials is highly desirable. In order to meet this challenge, the calculations and compilation of fitted constants in Seeger's semi-empirical mass formula has been carried out, which should be extremely useful for future studies/investigations. This data-set has been used to study the decay of hot and rotating compound nuclei (CN) $^{48}\text{Cr}^*$, $^{202}\text{Pb}^*$ and $^{246}\text{Bk}^*$. The DCM has also been extended to study the role of nuclear deformation and orientation in CN decay and its application to heavy mass CN like $^{246}\text{Bk}^*$ whereby it assumes significant contribution of deformation and orientations. This work has the potential of extending to other mass regions for having a good understanding of nuclear structure, in general, and nuclear dynamics, in particular.

During my Post-doctoral research at the Institute of Physics, Bhubaneswar, the (ground-state) cluster radioactive-decays have been studied using for the first time the relativistic mean field theory (RMFT) within the preformed cluster model (PCM) of Gupta and collaborators. Interestingly, the RMFT supports the concept of preformation of both the alpha and heavier clusters in radioactive nuclei. As a next step, it would be highly significant to theoretically calculate the P_0 within the RMFT whose calculated mass densities have already been shown by Patra and collaborators to support the clustering effects in various heavy parents with observed cluster decays. As another research activity, I am engaged in developing the M3Y-like nucleon-nucleon (NN) effective interaction from the popular RMFT Lagrangian. Recently, we have derived the most successfully used M3Y-like effective NN interaction from the linear RMFT Lagrangian. The constants used in the M3Y expression are derivable in terms of the meson (sigma σ , omega ω , rho ρ) masses m_σ , m_ω , m_ρ and their effective couplings g_σ , g_ω , g_ρ , respectively. Furthermore, the effective interaction obtained from the RMF Lagrangian is applicable to the study of the processes of alpha decay as well as cluster

radioactivity and, fusion phenomenon within a satisfactory precision. However, the present study has been carried out by taking in to consideration only the linear terms of the σ , ω and ρ meson fields. Apparently, it is relevant as well as interesting to study further the link between the RMF phenomenology and the effective NN interaction with the inclusion of the non-linear terms of these fields.

I have given seminars on my research work at a number of National and International Institutes/ Universities while attending Conferences/ Symposiums, etc., and on invitations as well. I am well connected with workers in the field of Nuclear Physics as well as other related areas of research, working across not only in India but also other countries at various research institutes and universities, which helps me to update myself regarding the latest developments in the area of research. My latest visits to some countries of Europe for presenting seminars at the universities/ research institutes on my latest research work have further raised my level of confidence and exposure to the field of scientific research. With present research experience, I can work independently as well as in collaboration on nuclear structure problems together with heavy ion collision problems, an area opening up to extend the nuclear landscape. It helps me to guide the students for their post graduate, M.Phil as well as Ph.D. research projects. Moreover, my teaching experience at Sri Guru Granth Sahib World University, Fatehgarh Sahib, Thapar University, Patiala and Swami Vivekanand Institute of Engineering and Technology (SVIET), Patiala is an added feature to enable me to do my related duties diligently.

Recently, I am carrying out research work entitled “Collective clusterization in very light mass nuclear systems formed in heavy ion collisions” funded by Department of Science & Technology (DST), New Delhi under Fast Track scheme for Young Scientists. The study of the decay of very light compound nucleus $^{28}\text{Al}^*$ formed in $^{18,17}\text{O}+^{10,11}\text{B}$ reactions using DCM is being studied. The lightest CN studied using DCM so far is $^{48}\text{Cr}^*$. It is relevant to mention here that we have also started the study of the decay of light odd mass compound nucleus $^{47}\text{V}^*$. We aim to have good understanding of nuclear structure, in general, and

nuclear dynamics, in particular, by extending the application of DCM for the further light as well as very light mass nuclear systems.

16. **Research Contributions:**

a) List of publications in international journals:

1) *Optical potential obtained from relativistic-mean field theory based microscopic nucleon-nucleon interaction: Applied to cluster radioactive decays.*

BirBikram Singh, M. Bhuyan, S K Patra, Raj K. Gupta, *Journal of Physics G: Nucl. Part. Phys. Vol.39 (2012) 025101.*

2) *Alpha decay and fusion phenomena in heavy ion collisions using nucleon-nucleon interaction derived from relativistic mean field theory.*

BirBikram Singh, B B Sahu, S K Patra, *Phys. Rev. C Vol. 83, (2011) 064601.*

3) *Importance of preformation probability in cluster radioactive-decays using relativistic mean field theory within the preformed cluster model.*

BirBikram Singh, S K Patra, Raj K. Gupta,

Int. J. of Mod. Phys. E (Nucl. Phys.) Vol. 20, No. 4 (2011) 1003.

4) *Cluster radioactive-decays using relativistic mean field theory within the preformed cluster model.* **BirBikram Singh, S K Patra, Raj K. Gupta, *Phys. Rev. C Vol. 82, (2010) 014607.***

5) *Cluster radioactivity with effects of deformations and orientations of nuclei included.* Sham K. Arun, Raj K. Gupta, Shefali Kanwar, **BirBikram Singh, Manoj K. Sharma, *Phys. Rev. C Vol. 80, (2009) 034317.***

6) *^{208}Pb -daughter cluster radioactivity and the deformations and orientations of nuclei.* Sham K. Arun, Raj K. Gupta, **BirBikram Singh, Shefali Kanwar, Manoj K. Sharma, *Phys. Rev. C Vol. 79, (2009) 064616.***

7) *Decay of ^{202}Pb * formed in $^{48}\text{Ca} + ^{154}\text{Sm}$ reaction using the dynamical cluster-decay model.* Shefali Kanwar, Manoj K. Sharma, **BirBikram Singh, Raj K. Gupta, Walter Greiner, *Int. J. of Mod. Phys. E (Nucl. Phys.) Vol. 18, No. 7 (2009) 1453.***

- 8) Decay of $^{246}\text{Bk}^*$ formed in similar entrance channel reactions of $^{11}\text{B} + ^{235}\text{U}$ and $^{14}\text{N} + ^{232}\text{Th}$ at low energies using the dynamical cluster-decay model. **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, *Phys. Rev. C* Vol. 77, (2008) 054613.
- 9) Entrance-channel effects in the dynamical cluster decay model for the decay of hot and rotating compound nucleus ^{48}Cr at $E_{cn}^* \sim 60$ MeV. **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, W. Greiner, *Int. J. of Mod. Phys. E (Nucl. Phys.)* Vol. 15, No. 3 (2006) 699-717.
- 10) Shape changes at high spin in ^{78}Kr . Anukul Dhal, Rishi Kumar Sinha, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, A. Shukla, P.K. Raina, K.S. Thind, A.K. Sinha, I.M. Govil, P.K. Joshi, R.K. Bhowmik, A.K. Jain, S.C. Pancholi, L. Chaturvedi, *Eur. Phys.J. A* 27 (2006) 33.
- 11) Loss of collectivity in ^{79}Rb . Rishi Kumar Sinha, Anukul Dhal, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, K.S. Thind, A.K. Sinha, I.M. Govil, R.K. Bhowmik, J.B. Gupta, P.K. Joshi, A.K. Jain, S.C. Pancholi, L. Chaturvedi, *Eur.Phys. J. A* 28, (2006) 277.
- 12) Temperature-dependent Seeger's liquid drop energy for nuclei up to $Z=118$. **BirBikram Singh**, Manoj K. Sharma, Raj Kumar, Manie Bansa, Raj K. Gupta, *Phys. Rev. C* - to be submitted
- 13) Suppression of fusion cross-sections in reactions using loosely bound projectiles. **BirBikram Singh**, S K Patra, Raj K. Gupta, *Phys. Rev. C* - to be submitted
- 14) Fusion-fission of compound nucleus $^{28}\text{Al}^*$ formed in $^{18,17}\text{O} + ^{10,11}\text{B}$ reactions using dynamical cluster decay model, **BirBikram Singh**, Gurvinder Kaur, Manoj K. Sharma, Raj K. Gupta, *Journal of Physics G: Nucl. Part. Phys.* - to be submitted

b) List of papers accepted for presentation in the international conferences:

1) *Decay of heavier compound systems using Dynamical Cluster Decay Model.*

BirBikram Singh, Manoj K. Sharma, Raj K. Gupta,

International workshop on Nuclear Structure Physics at the Extremes: New Directions, H P University, Shimla, 2005.

2) *Evaporation residues, fission and capture cross-sections using the dynamical cluster-decay model.* Raj K Gupta, Manoj K. Sharma, Monika Manhas, **BirBikram**

Singh, Niyti Sharma ,

Fourth International Conference on Fission and Properties of Neutron-Rich Nuclei, Sanibel Island, Florida, November 11-17, 2007.

3) *Decay of $^{202}\text{Pb}^*$ formed in $^{48}\text{Ca} + ^{154}\text{Sm}$ reaction using the dynamical cluster-decay*

model. Manoj K. Sharma, Shefali Kanwar, **BirBikram Singh**, Raj K Gupta,

International Conference on Nuclear Structure and Dynamics, Dubrovnik, May 4-8, 2009.

4) *Suppression of fusion cross-sections in reactions using loosely bound projectiles.*

BirBikram Singh, S K Patra, M. Bhuyan, Raj K. Gupta,

International DAE Nucl. Phys. Symp., BARC, Mumbai, Vol. 54 322, Dec., 2009.

5) *Cluster radioactive-decay using relativistic mean field theory within the preformed cluster model.* **BirBikram Singh**, S K Patra, M. Bhuyan, Raj K. Gupta,

International DAE Nucl. Phys. Symp., BARC, Mumbai, Vol. 54 210, Dec., 2009.

6) *The internal structure of $^{112-122}\text{Ba}^*$ nuclei using the relativistic mean field formalism.*

M. Bhuyan, S K Patra, **BirBikram Singh**, Raj K. Gupta,

International DAE Nucl. Phys. Symp., BARC, Mumbai, Vol. 54 180, Dec., 2009.

7) *Properties of the superheavy $Z=122$ isotopes.* M. Bhuyan, S K Patra, **BirBikram**

Singh, Raj K. Gupta, International DAE Nucl. Phys. Symp., BARC, Mumbai, Vol.

54 182, Dec., 2009.

8) *Importance of preformation probability in cluster radioactive-decays using relativistic mean field theory within the preformed cluster model.* **BirBikram Singh**,

S K Patra, Raj K. Gupta, 2nd workshop on "State of the Art in Nuclear Cluster Physics", May 25-28, 2010.

9) *A new M3Y-like microscopic nucleon-nucleon interaction derived from relativistic mean field theory.* **BirBikram Singh**, M Bhuyan, S K Patra, Raj K. Gupta, Conference on "Nuclear Physics in Astrophysics V Conference", April 03-08, 2011.

10) *Study of the fusion phenomena in heavy ion collisions using nucleon-nucleon interaction derived from relativistic mean field theory.* **BirBikram Singh**, S K Patra, International Conference on "Reaction Mechanisms and Nuclear structure around the Coulomb Barrier", May 02-06, 2011.

c) List of papers accepted for presentation in the national conferences:

1) Fusion-fission of compound nucleus $^{28}\text{Al}^*$ formed in $^{18,17}\text{O}+^{10,11}\text{B}$ reactions using dynamical cluster decay model ,

BirBikram Singh, Gurvinder Kaur, Manoj K. Sharma, Raj K. Gupta, **Delhi University (New Delhi) Proceedings of the DAE Symp. on Nucl. Phys. 57 (2012) 550.**

2) *Study of the fusion phenomena in heavy ion collisions and the α -decay using nucleon-nucleon interaction derived from relativistic mean field theory.*

BirBikram Singh, B. B. Sahu, S K Patra, Andhra Pradesh University (Vishakhapatnam), Proceedings of the DAE Symp. on Nucl. Phys. 56 (2011) 546.

3) *The RMF theory based 3-Yukawas (R3Y) vs. the Michigan 3-Yukawas (M3Y) NN interactions for the cluster radioactive decay studies.*

BirBikram Singh, M. Bhuyan, S K Patra, Raj K. Gupta, Andhra Pradesh University (Vishakhapatnam), Proceedings of the DAE Symp. on Nucl. Phys. 56 (2011) 304.

4) *Temperature-dependence in Seeger's liquid drop energy and the dynamical cluster-decay model*

BirBikram Singh, Manoj K. Sharma, Raj Kumar, Manie Bansa, Raj K. Gupta, Andhra Pradesh University (Vishakhapatnam), Proceedings of the DAE Symp. on Nucl. Phys. 56 (2011) 556.

5) *Fusion-fission of very light mass compound nucleus $^{28}\text{Al}^*$ using the dynamical cluster decay model*

BirBikram Singh, Gurvinder Kaur, Manoj K. Sharma, Raj K. Gupta, Andhra Pradesh University (Vishakhapatnam), Proceedings of the DAE Symp. on Nucl. Phys. 56 (2011) 474.

6) *M3Y effective nucleon-nucleon interaction and the relativistic mean field theory.*

BirBikram Singh, S K Patra, Raj K. Gupta, BITS (Pilani), DAE Nucl. Phys. Symp., BITS (Pilani), **55**, 200 (2010).

7) *Phenomenological formula for cluster preformation probability in exotic radioactive nuclear decays.* **BirBikram Singh**, S K Patra, Raj K. Gupta, BITS (Pilani), DAE Nucl. Phys. Symp., BITS (Pilani), **55**, 202 (2010).

8) *Cluster radioactive decay using relativistic mean field theory.* **BirBikram Singh**, S K Patra, M. Bhuyan, Raj K. Gupta, Indian nuclear society National seminar on Nuclear Technology for Sustainable Development, Thapar University, Patiala, Page 102, October 10-11, 2009.

9) *Relativistic mean field theory and internal structure of clusters in $^{112-122}\text{Ba}^*$ nuclei.*

M. Bhuyan, S K Patra, **BirBikram Singh**, Raj K. Gupta, Indian nuclear society National seminar on Nuclear Technology for Sustainable Development, Thapar University, Patiala, Page 103, October 10-11, 2009.

10) *Dynamical cluster decay model for heavy ion collisions.* **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, National Conference on Emerging Trends in Communication, SVIET, Patiala, February 20-21, 2009.

11) *Role of higher multi-pole deformations and orientations in the ^{208}Pb -daughter cluster radioactivity.* **BirBikram Singh**, Manoj K. Sharma, Shefali Kanwar, Raj K Gupta, DAE Nucl. Phys. Symp., IIT Roorkee, Uttarakhand, **53**, 261 (2008).

12) *Evaporation residues, fission and quasi-fission cross-sections in the decay of $^{202}\text{Pb}^*$ using dynamical cluster decay model.* Shefali Kanwar, **BirBikram Singh**, Manoj K. Sharma, Raj K Gupta, DAE Nucl. Phys. Symp., IIT Roorkee, Uttarakhand, **53**, 497 (2008).

- 13) *Fission and quasi-fission processes in the decay of hot and rotating compound nucleus $^{246}\text{Bk}^*$.* **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, 11th Punjab Science Congress, Thapar University, Patiala, February, 2008.
- 14) *Role of deformations and orientations in the cluster decay of ^{242}Cm nucleus.* **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, 11th Punjab Science Congress, Thapar University, Patiala, February, 2008.
- 15) *Identification of sub-structure in the fission of $^{246}\text{Bk}^*$ formed in $^{11}\text{B} + ^{235}\text{U}$ reaction.* **BirBikram Singh**, Manoj K. Sharma, Shefali Kanwar, Raj K Gupta, DAE Nucl. Phys. Symp., Sambalpur University, Burla, Orissa , Vol. 52, 429 Dec., 2007.
- 16) *Role of deformation and orientations in the fission decay of $^{246}\text{Bk}^*$.* **BirBikram Singh**, Manoj K. Sharma, National Conference on Emerging Trends in Engineering Materials, TIET, Patiala, February 1-3, 2007.
- 17) *Decay of $^{48}\text{Cr}^*$ using Energy Density Formalism.* Shefali Kanwar, **BirBikram Singh**, Manoj K. Sharma, National Conference on Emerging Trends in Engineering Materials, TIET, Patiala, February 1-3, 2007.
- 18) *Dynamical Cluster Decay Model for the decay of heavy compound nucleus system.* **BirBikram Singh**, Manoj K. Sharma, Raj K. Gupta, 10th Punjab Science Congress, DAV Institute of Engineering and Technology, Jalandhar, February 7-9, 2007.
- 19) *Fission cross-sections of $^{246}\text{Bk}^*$ formed in $^{14}\text{N} + ^{232}\text{Th}$ reaction, using dynamical cluster-decay model.* **BirBikram Singh**, Manoj K. Sharma, Raj K Gupta, DAE-BRNS Nucl. Phys. Symp., MSR University of Baroda, Vadodra, Vol. 51 345, Dec., 2006.
- 20) *Evaporation residue cross-sections in the decay of $^{226}\text{U}^*$ formed in $^{28}\text{Si} + ^{198}\text{Pt}$ reaction, using the dynamical cluster decay model.* **BirBikram Singh**, Manoj K. Sharma, Raj K Gupta, DAE-BRNS Nucl. Phys. Symp., BARC, Mumbai, Vol. 50 329, Dec., 2005.
- 21) *Role of Angular Momentum in the Decay of Hot ^{48}Cr .* **BirBiram Singh**, Manoj K. Sharma, National conf. on Adv. in Condensed matter Physics, TIET, Patiala, Pages 38-143, (2005).

22) Shape changes at high spin in ^{78}Kr .

Anukul Dhal, Rishi Kumar Sinha, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, A. Shukla, P.K. Raina, K.S. Thind, A.K. Sinha, I.M. Govil, P.K. Joshi, R.K. Bhowmik, A.K. Jain, S.C. Pancholi, L. Chaturvedi, DAE-BRNS Nucl. Phys. Symp., BHU, Banaras, Vol. **47B** 56, Dec., 2004.

23) Decrease in collectivity at high spins in ^{79}Rb nucleus. Rishi Kumar Sinha, Anukul Dhal, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, K.S. Thind, A.K. Sinha, I.M. Govil, R.K. Bhowmik, J.B. Gupta, P.K. Joshi, A.K. Jain, S.C. Pancholi, L. Chaturvedi, DAE-BRNS Nucl. Phys. Symp., BHU, Banaras, Vol. **47B** 174, Dec., 2004.

24) Entrance Channel Effects using the Dynamical Cluster Decay Model: Decay of ^{48}Cr . Manoj K. Sharma, **BirBikram Singh**, Dalip Singh, Raj K. Gupta, DAE Nucl. Phys. Symp., BHU, Banaras, Vol. **47 B** 276, Dec, 2004.

25) High spin structure in ^{78}Kr .

Anukul Dhal, Rishi Kumar Sinha, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, A. Shukla, P.K. Raina, K.S. Thind, A.K. Sinha, I.M. Govil, P.K. Joshi, R.K. Bhowmik, A.K. Jain, S.C. Pancholi, L. Chaturvedi, DAE-BRNS Nucl. Phys. Symp., BARC, Bombay Vol. **46B** 98, Dec., 2003.

26) Shape effects in ^{79}Rb .

Rishi Kumar Sinha, Anukul Dhal, Priyanka Agarwal, Suresh Kumar, Monika, **BirBikram Singh**, R. Kumar, P. Bringel, A. Neusser, R. Kumar, K.S. Golda, R.P. Singh, S. Muralithar, N. Madhavan, J.J. Das, K.S. Thind, A.K. Sinha, I.M. Govil, R.K. Bhowmik, J.B. Gupta, P.K. Joshi, A.K. Jain, S.C. Pancholi, L. Chaturvedi, DAE-BRNS Nucl. Phys. Symp., BARC, Bombay Vol. **46B** 102, Dec., 2003.

27) *Fission and Cluster Decay of ^{48}Cr Formed in Heavy Ion Reactions.* Manoj K. Sharma, **BirBikram Singh**, DAE Nucl. Phys. Symp., Mumbai, Vol. **46 B** 270, Dec, 2003.

28) *Fission decay of ^{48}Cr at higher incident energies.* Manoj K. Sharma, **BirBikram Singh**, National Conference on Materials and related Technologies, TIET, Patiala, Pages 422-427, Sep, 2003.

17. Other information:

Duties/ Responsibilities/ Accomplishments/ Administrative work at

Sri Guru Granth Sahib World University (*Besides teaching UG & PG classes and research activities following work was assigned to me*) :

- a) Dean Students' Welfare (August 2012-till date)
- b) Chief Hostel Warden
- c) Department Incharge, Physics (January 2013-till date)
- d) Secretary, SGGSWU Sewa Society
- e) Coordinator, Career & Guidance Cell (September, 2011-September 2012)

Number of activities carried out throughout academic sessions 2011-12 and 2012-13 other than accomplishing the administrative duties. Being in a new University administrative set up is evolving and lot of hard work & efforts are put into for the smooth functioning of the various departments mentioned above, other than various common assignments at the University level.

18. References:

a.) PROF. RAJ K. GUPTA

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b.) DR. MANOJ K. SHARMA, ASSOCIATE PROFESSOR

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