Curriculum Vitae

1. **NAME :** Suresh Kumar Patra

2. **DATE OF BIRTH :** 14th April 1964

3. **NATIONALITY :** Indian

4. **SEX :** Male

5. **MARITAL STATUS :** Married

6. **ADDRESS :** Institute of Physics
Sachivalaya Marg
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India
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FAX :(+91)-674-2300142

7. **EDUCATIONAL QUALIFICATION :**

(1) 1985 : **B. Sc. in Physics**

Sonepur College, Sonepur, India.

(2) 1985 – 1987 **M. Sc. in Physics**

Sambalpur University, Burla, India.

(3) 1988 – 1989 **Post M.Sc. in Physics**

Institute of Physics, Bhubaneswar, India.

(4) 1989 – 1994 **Ph.D. in Nuclear Physics Theory.**

Institute of Physics, Bhubaneswar, India.

TITLE OF RESEARCH TOPIC:

Relativistic Mean Field Study of Beta-stable and Beta-unstable Nuclei.

8. **RESEARCH EXPERIENCE:**

(1) 1994 – 1995 **Postdoctoral Research Fellow**

Department of Physics, Tohoku University, Sendai, Japan.

(2) 1995 – 1997 Postdoctoral Research Fellow
Institüt für Theoretische Physik, J.W.G. University, Frankfurt, Germany.

(3) 1997 – 1999 Postdoctoral Research Fellow
Department of Physics, CYCU, Chung-Li, Taiwan

(4) 1999 – 2001 Postdoctoral Research Fellow
Department of Physics, University of Barcelona, Barcelona, Spain

(5) November 29th – December 19th 2003. Visiting Fellow
Department of Physics, University of Barcelona, Barcelona, Spain

(9) June 2005 – December 2005 EPSRC Research Fellow
Department of Physics, University of Surrey, Guildford, U.K.

(10) April 2006 – June 2006 Re-visit in AvH Fellowship
Frankfurt Institute of Advanced Studies, Frankfurt/Main, Germany.

(11) 5th November 2007 – 19th November 2007 Visiting Fellow
Centro de Fisica das Interaccoes Fundamentals, Instituto Superior Tecnico-Edificio Ciencia (Fisica), 8th November 2007, Lisbon, Portugal

(12) 19th November 2007 – 28th November 2007
GSI, Darmstadt, for Research Collaboration

9. **POSITION HELD:**

(1) August 2001 – July 31st 2004 Sr. Lecturer
Institute of Physics, Sachivalaya Marg, Bhubaneswar, India

(2) 1st August 2004 – July 31st 2007 Asst. Professor
Institute of Physics, Sachivalaya Marg, Bhubaneswar, India

(3) 1st August 2007 – July 31st 2010 Reader-F
Institute of Physics, Sachivalaya Marg, Bhubaneswar, India

(4) 1st August 2010 – August 31st 2015 Associate Professor
Institute of Physics, Sachivalaya Marg, Bhubaneswar, India

(5) 1st July 2015 – till date Professor
Institute of Physics, Sachivalaya Marg, Bhubaneswar, India

10. **TEACHING EXPERIENCE:**

- Pre-doctoral (Post M.Sc.) course: Nuclear Physics, 2002, 2003, 2004, 2007, 2008, 2009, 2010, 2011, 2016, 2017.
- Pre-doctoral (Post M.Sc.) course: Advanced Quantum Mechanics, 2014-2015.
- SERC School on Nuclear Physics: TIFR, Mumbai 2014.
- SERC School on Nuclear Physics: IIT Roorkee, Roorkee 2015.
- SERC School on Nuclear Physics: University of Kashmir, Srinagar, 16 May to 6th June 2016.

11. **RECIPIENT OF FELLOWSHIPS:**

- Re-visit Alexander von Humboldt Research Fellow, Germany (April 2006-June 2006).
- EPSRC Research Fellow, Govt. of U.K., June-December (2005).
- Spain Education Ministry Fellowship, Spain (1999-2001).
- National Science Council Fellow, Taiwan, (1997-99).
- Alexander von Humboldt Research Fellow, Germany, (1995-97).
- Monbusho Research Fellow, Japan, (1994-95).
- Predoctoral and Doctoral Research Fellow, Institute of Physics, Bhubaneswar (1988-94).
- National Scholarship, (1985-87).
- Apart from the above, I had also been selected for a visiting lecturer in the University of Santa Catarina, Florianopolis, Brazil, FAFRJ Research Fellow (BRAZIL), FAPESP Research Fellow (BRAZIL), Postdoctoral Fellow in University of Tel Aviv, Israel, Postdoctoral Fellow in Institute of Super-Technique, Lisbon, Portugal, Visiting Scientist in University of Gent, Belgium.

12. **Participation in (completion of) major Projects :**

- Indo-German cooperation project: Search for superheavy isotopes: A new phenomenon, INT/FRG/BMBF/P-37/2006.
- DST project: Study of drip-line nuclei, No. SR/S2/HEP-22/2003.
- DST Project: Nuclear structure and nuclear reactions for drip line nuclei in relativistic models, SR/S2/HEP-16/2005.
- CSIR Project: Relativistic semi-classical calculation of giant resonances, No. 03(1060)06/EMR-II.
- DST Project: Study of high spin states in non-relativistic and relativistic mean field formalism with good rotational symmetry, SR/S2/HEP-26/2006.
- DST Project: Study of exotic drip-line nuclei, No. SR/S2/HEP-0010/2008.
- DST Project: Structure of high spin states, K isomers, super-deformed bands in nuclei (DST Project No. SR/S2/HEP-0037/2008).
- DST Project: Study of Structure and Decay of Super Heavy Nuclei (DST Project No. SB/S2/HEP-013/2013).

- DST Project: The project proposal entitled "Study of Structure and Spectroscopy of Nuclei near Drip-lines" (DST Project No. SR/S2/HEP-006/2013).

13. **SEMINAR/COLLOQUIUM/PRESENTATION GIVEN IN IMPORTANT PLACES:**

- Nuclear Physics and its Applications, National Seminar on Recent Trends in Physical Sciences (RTPS-2019, Rajendra College, Balangir, 15-16, February 2019.
- Effective surface properties of light, heavy, and super- heavy nuclei, Indo-French Seminar on Multifragmentation, Collective Flow and Sub Threshold Particle Production in Heavy Ion reactions, Panjab University Chandigarh Feb 4-6, 2019.
- Tidal deformability and Gravitational Waves, International Seminar on "Emerging Trends in Physics and Applications", Parala Maharaj Engineering College, Berhampur, 2-4, February 2019.
- Effective Surface Properties of Sn isotopes, International conference on Nuclear, Particle and Accelerator Physics (INCPAP-2018), October 23-26, 2018, Central University of Jharkhand, Ranchi.
- Tidal deformity of neutrons and hyperons stars with relativistic mean field theory, DAE Symposium on Nuclear Physics, December 20-24, 2017, Thapar University, Patiala.
- Gravitational waves, Centurian University, Bhubaneswar, 27-07-2017.
- Tidal deformity of neutron and hyperon star with relativistic mean field theory, Ravenshaw University, Cuttack, 12-04-2017.
- Tidal deformibility of neutron and hyperon star with relativistic mean field equation of states, Department of Physics, Panjab University, Chandigarh, 15-18 March 2017, INTERNATIONAL CONFERENCE IN NUCLEAR PHYSICS WITH ENERGETIC HEAVY ION BEAMS.
- Ternary fission of ^{252}Cf using temperature dependent relativistic mean field approach, National conference on Nuclear and Accelerator Physics (NCNAP-2016), October 4-6, 2016. Central University of Jharkhand, Ranchi.
- The effect of self interacting isoscalar-vector meson on finite nuclei and infinite nuclear matter, Institute of Physics, Bhubaneswar, Nuclear Physics Meet 26-30 June 2016.
- The effect of self interacting isoscalar-vector meson on finite nuclei and infinite nuclear matter, Aligarh University, Aligarh, 15-16 February 2016.

- Nuclei and Applications: Neutron-rich thermally fissile nuclei, Orissa Physical Society, Maharshi College, Bhubaneswar
- Indira Gandhi Institute of Technology, Sarang, 19-21 March 2016.
- Gravitational wave from rotating neutron star, National seminar on Recent Advances in Physics 5th-6th, May 2014, Berhampur University.
- Gravitational wave from rotating neutron star, 6th Asian nuclear physics symposium, ANPhAS-2014, VECC, Kolkata, February 19-21, 2014.
- Gravitational wave from rotating neutron star, Indo-UK seminar on ISOLDE, Department of Physics, Panjab University, Chandigarh, January 21-23, 2014.
- Microscopic origin of NN interaction, National Conference on Double Beta Decay and Neutrinos, Department of Physics, IIT Ropar and Department of Physics, Panjab University, Chandigarh, April 20-21, 2013.
- The Puzzle of the Nucleus, Seminar given at Ravenshaw University, April 5, 2013.
- Microscopic origin of NN interaction, National Conference on Nuclear Physics, Department of Physics, Sambalpur University, March 1-2, 2013.
- Formation of Heavy elements in rapid neutron capture process, National Conference on Nuclear Astro-Physics, Department of Physics, Calcutta University, February 5-6, 2013.
- Formation of Heavy elements in rapid neutron capture process, National Conference on Nuclear Astro-Physics, Department of Physics, Calcutta University, February 5-6, 2013.
- The relativistic Lagrangian: Nucleon-nucleon potential, Int. Conf. on Recent trends in Nuclear Physics, 19-21 November 2012.
- Structure of neutron rich nuclei and new magic number, invited talk given at VECC in NUSTAR meet, March 2012.
- Invited talk given on Nuclear Energy, Centurian University, Bhubaneswar.
- Effective Nucleon-Nucleon Interaction and its application to Nuclear Radio Activity, invited talk given at Recent Advances in Science for Technology (RAST-2012), VSS University, Burla.
- Nucleon-Nucleon Interaction, Talk given at Department of Physics, Aligarh Muslim University, Aligarh, March 3, 2012.

- Fission of heavy Uranium and Thorium isotopes: source of new phenomena and dynamics, invited talk given at TIFR in NUSTAR meet, 21-22 February 2011.

- Application of relativistic mean field theory, Invited talk given in the National Seminar on "Contemporary Trend in Nuclear Physics", Aligarh Muslim University, Aligarh, October 21-22, 2010.

- Neutron-rich and superheavy nuclei: Relativistic mean field theory, Invited talk given at Workshop on "Simulation studies and large scale computing", IUAC, New Delhi, 31st October 2009.

- New islands of stability in the drip-line regions manifesting new phenomena, Frontiers in Gamma rays Spectroscopy, Tata Institute of Fundamental Research, Mumbai, India, March 2-4, 2009.

- Formation of superheavy and neutron-rich nuclei in astrophysical objects, Invited talk given at "National Seminar on Advences in Physics" Berhampur University, Orissa, February 6-7, 2009.

- Summary talk given at the DAE-BRNS Symposium (India) in Nuclear Physics, Indian Institute of Technology, Roorkee, December 22-26, 2008.

- Recent developments in relativistic mean field theory, Centro de Fisica das Interaccoes Fundamentals, Instituto Superior Tecnico-Edificio Ciencia (Fisica), 8th November 2007, Lisbon, Portugal.

- Clustering in nuclei, June 2006, Department of Physics, University of Barcelona, Spain.

- Relativistic Mean Field Formalism and its Application to finite nuclei, 17th November 2005, Department of Physics, University of York, U.K.

- Relativistic Mean Field Formalism and its Recent Developments, 9th October 2005, Department of Physics, University of Surrey, U.K.

- Relativistic Mean Field Formalism and its Recent Developments, presented at Int. Workshop on "Nuclear Structure at the Extremes: New Directions", Department of Physics, H.P. University, Shimla, India March 21-24, 2005.

- Nuclear Physics: Past, Present and Future, North Orissa University, Baripada, October 17, 2004.

- Lecture given on "Relativistic semiclassical calculation of isoscalar giant resonances" at the National Workshop on "Relativistic mean field theory in nuclear physics", Institute of Physics, Bhubaneswar, India during 26-31 st July, 2004.

- Lecture given on "Recent developments in relativistic mean field formalism" at the National Workshop on "Relativistic mean field theory in nuclear physics", Institute of Physics, Bhubaneswar, India during 26-31 st July, 2004.

- Invited talk given on "Field theory motivated effective Lagrangian approach: towards a complete relativistic nuclear model" at the National Conference on "Neutrinos in Nuclear, Particle and Astrophysics", held at I I T Kharagpur, India during 26-28 th Feb, 2004.

- Invited talk given on "Field theory motivated effective Lagrangian approach: towards a complete relativistic nuclear model" at the National Workshop on "Production & Utilization of Radioactive Ion Beams from ISOL type facilities", held at Toshali Sands Resorts, Puri, India during 16-19 th Feb, 2004, organised by VECC, Kolkata.

- Lectures given on "Scaling calculations of Isoscalar Giant Resonances in Relativistic Thomas-Fermi Theory" at the National Workshop, Puri (India) on "Nuclei at extremes of Isospin and Mass", Institute of Physics, Bhubaneswar, March 10−22 (2003).

- Invited talk on "Scaling calculations of Isoscalar Giant Resonances in Relativistic Thomas-Fermi Theory" at DAE-BRNS Symposium (India) in Nuclear Physics, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, December 26−30 (2002).

- "Structure of Superheavy elements" Centro de Fisica das Interaccoes Fundamentals, Instituto Superior Tecnico-Edificio Ciencia (Fisica), Lisbon, Portugal.

- "Structure of Superheavy elements" Department of Physics, University of Barcelona, Barcelona, Spain.

- "The $k - i$ basis shell model: -Recent development of the Fermion Dynamical Symmetry Model," Department of Physics, University of Barcelona, Barcelona, Spain.

- "Relativistic Mean Field Theory and its application to negative energy states", Department of Physics, Chung Yuan Christian University, Chung-Li, Taiwan.

- Strong Correlation of the Vacuum in Relativistic Mean Field Theory, Institute of Physics, Bhubaneswar, India.

- "Anti-particle bound state in Relativistic Mean Field Theory", Nuclear Physics Institute, Academic of Sciences, Rez (Prague), Czech Republic.

- "Strong correlation of vacuum in the relativistic mean field theory", Department of Physics, University of Gottingen, Gottingen,

- "Halo-Structures of Light Exotic Nuclei", GSI, Darmstadt, Germany.
- "Negative energy bound states in relativistic mean field theory", Institut für Theoretische Physik, J.W.G. University, Frankfurt/M, Germany.
- "How far the magic number Z=82 is true in exotic nuclei ?", Department of Physics, Hong Kong University, Hong Kong.
- "Superdeformation in neutron-deficient rare-earth nuclei" Yukawa Institute, Kyoto, Japan.
- "Shape and superdeformed structure in rare-earth nuclei", Center for Mathematical Sciences, Office for Planing and Management, University of Aizu, Aizu-Wakamatsu, Japan.
- "Neutron- and proton-rich nuclei near the drip-lines and its astrophysical application", Department of Physics, Tohoku University, Sendai, Japan.

14. **PARTICIPATION IN SYMPOSIA, SCHOOLS and CONFERENCES:**

- National Seminar on "100 years of General Theory of Relativity", Department of Physics, Utkal University, Vani Vihar, Bhubaneswar, March 10-12, 2015.
- DAE-BRNS Symposium (India) in Nuclear Physics, Birla Institute of Technology, Pilani, December 22-26, 2011.
- Nucleon-nucleon interaction and Nuclear many-body problem, Tata Institute of Fundamental Research, Mumbai, 18-27 November, 2010.
- Int. Workshop on "Nuclear Structure at the Extremes: New Directions", Department of Physics, H.P. University, Shimla, India March 21-24, 2005.
- Workshop on "Hadron Physics", held at Toshali Sands Resorts, Puri, India March 7-17, 2005, organised by Institute of Physics, Bhubaneswar.
- Workshop on "Relativistic mean field theory in nuclear physics", Institute of Physics, Bhubaneswar, India during 26-31 st July, 2004.
- Workshop on "Nuclear astrophysics using low energy accelerators", Saha Institute of Nuclear Physics, Kolkata, India 29th April, 2004.
- "Production & Utilization of Radioactive Ion Beams from ISOL type facilities", held at Toshali Sands Resorts, Puri, India during 16-19 th Feb, 2004, organised by VECC, Kolkata.
- "National Conference on Neutrinos in Nuclear, Particle and Astrophysics", held at I I T Kharagpur, India during 26-28 th Feb, 2004.
- Workshop on "Nuclear structure and decay data: Theory and evaluation", 17-28 November 2003, The Abdus Salam International Centre for Theoretical Physics, Italy.
- Nuclear Structure and Decay Data: Theory and Evaluation, ICTP, Italy, November 17−28 (2003).
- DAE-BRNS Symposium (India) in Nuclear Physics, Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu, December 26−30 (2002).
- DAE-BRNS Symposium (India) in Nuclear Physics, Saha Institute of Nuclear Physics and Variable Energy Cyclotron Centre, Calcutta December 26−30 (2001).
- Spring School on Nuclear Physics, Sun-Moon Lake, Taiwan (1999).
- Physical Society of Republic of China, Academia Sinica, Taipei, Taiwan, (1999).

- 1998 School on Nuclear Physics and Few-Body Problem, Chi-theo, Taiwan (1998).
- Physical Society of Republic of China, Central National University, Chung-Li, Taiwan, (1998).
- Physical Society of Germany, Goettingen, (1997).
- International Conference on Physics of Unstable Nuclei, University of Niigata, Niigata, Japan, (1994).
- Structure of Unstable Nuclei, Yukawa Institute, Kyoto, Japan, (1994).
- National Symposium on Nuclear Structure, IUC Calcutta Centre, Puri, (1993).
- IV*th* SERC School on Nuclear Physics, Goa University, Goa, (1993).
- VIII*th* SERC School on High Energy Physics, Institute of Physics, Bhubaneswar, (1992).
- International Conference on Medium and High Energy Nuclear Physics, Saha Institute of Nuclear Physics, Calcutta, India (1991).
- Department of Atomic Energy (India) Symposium in Nuclear Physics, Madras, December, 1990, Bombay, December, 1991.
- SERC School on Nuclear Structure, Banarus Hindu University, Varanasi (1989).

15 A. **Ph.D. STUDENT SUPERVISION:**

I am the supervisor and co-supervisor of the following Ph.D. students.

1. Thesis Supervisor of Dr. B.K. Sharma (Ph.D. awarded)

   Title: Relativistic Nuclear Many-Body Problems

2. Thesis Co-supervisor of Dr. M.S. Mehta (Ph.D. awarded)

   Title: The Nuclear Structure Studies in the Drip lines and Superheavy Region using Relativistic Mean Field Formalism

3. Thesis Co-supervisor of Dr. A. Gangadeb (Thesis submitted)

   Title: Giant dipole resonance studies of rapidly rotating hot nuclei

4. Thesis Co-supervisor of Dr. R. N. Panda (Ph.D. awarded)

   Title: Nuclear reaction for exotic nuclei

5. Thesis Co-supervisor of Dr. M. Bhuyan (Ph.D. awarded)

   Title: Structure of drip-line and superheavy nuclei in effective relativistic and nonrelativistic interactions.

6. Thesis Co-supervisor of Dr. Mohammad Ikram (Ph.D. awarded) *Title: A relativistic mean field study of superheavy nuclei and hypernuclei.*

7. Thesis Co-supervisor of Dr. Mahesh K. Sharma (Ph.D. awarded) *Title: Nuclear reaction and structure effects near and beyond the $\beta-$stability line.*

8. Thesis supervisor of Dr. S. K. Singh (Ph.D. awarded)

   Title: Application of Mean Field Theory to Nuclear Equation of State and Drip-line Nuclei.

9. Thesis supervisor of Dr. S. K. Biswal (Ph.D. awarded)

   Title: Nuclear Giant Resonances and Equation of States.

10. Dr. Tarun Kumar Jha (Ph.D. awarded)

11. Dr. Suchitra Mohapatro (Ph.D. awarded)

    Title: Properties of drip-line and superheavy nuclei using relativistic mean field theory

12. Thesis supervisor of Dr. Bharat Kumar (Ph.D. awarded)

    Title: Implications of nuclear interaction for nuclear structure and astrophysics within the relativistic mean-field model

13. Thesis supervisor of Mr. Abdul Quddus

    Nuclear structure

14. Thesis supervisor of Mr. K. C. Naik *Nuclear structure*

15. Thesis co-supervisor of Mr. Vishal Parmer *Nuclear structure*

16. Thesis supervisor of Mr. H. C. Das *Nuclear structure & Nuclear Astrophysics*

17. Thesis supervisor of Mr. Ankit Kumar *Nuclear structure & Nuclear Astrophysics*

18. Thesis supervisor of Mr. Jeet Amrit Pattnaik *Nuclear structure*

15B. **Mentor of Postdoctoral students**

1. Prof. P. Arumugam

2. Prof. Amrutanshu Shukla

3. Prof. Ramesh Chandra

4. Prof. Santosh Kumar Agrawala

5. Prof. Bidhu Bhasan Sahu
6. Prof. BirBikram Singh
7. Dr. Chirashree Lahiri
8. Dr. Manpreet Kaur

16A. **COMMITTEE SERVICE:**

- Convener of the **REFRESHER COURSE FOR COLLEGE TEACHERS** for 2001, 2002, 2003, 2004.
- Co-ordinator of the **SUMMER STUDENT VISITING PROGRAMME (SSVP)** for 2005, 2006, 2007, 2008, 2009, 2011,2012, 2013.
- Convener of the **NATIONAL WORKSHOP ON RELATIVISTIC MEAN FIELD THEORY IN NUCLEAR PHYSICS**.
- Co-Editor of the proceeding: **RELATIVISTIC MEAN FIELD THEORY IN NUCLEAR PHYSICS**.
- Local Coordinator of the Joint Entrance Screening Test (JEST) (2008-till date).
- Local Co-ordinator of the OCES/DGFS (BARC Training School) Written Test Examination for 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013.
- Co-ordinator of the **SUMMER TEACHER VISITING PROGRAMME (STVP)** for 2011.
- Member of the Organization committee in the "National Conference on Nuclear Physics", 1-3, March 2013.
- Member of the Organization committee in the "National and International Symposium on Nuclear Physics" organised by DAE, Govt. of India.
- Member of the Organization committee in the "International Conference on Recent Trends in Nuclear Physics-2012 (ICRTNP-2012)", 19-21 November 2012, Chitkara University.
- Served in many internal committee of the Institute.

16B. **AWARDS & HONOURS:**

- (i)Referee: Journal of Physics G: Nuclear and Particle Physics.
- (ii) Referee: Physical Review C, Review of Modern Physics and Physical Review Letters.

- (iii) Referee: International Journal of Modern Physics E.
- (iv) Referee: PRAMANA: Journal of Physics.
- (v) Referee: Physics Letters B.
- (vi) Central European Journal of Physics.

17. **COMPUTING EXPERIENCE :**

I have worked in several computing environments, namely IBM/*TSO*, VAX/*VMS* and almost all Unix platforms supporting X-windows, *e.g.* Sun/*Solaris*, HP/*HP-UX*, DEC/*OSF/1*, SGI/*IRIX*, PC/*Linux etc.* I have extensively programmed in FORTRAN77 for my research work.

18. **LIST OF PUBLICATIONS :**

(a) Publications in Refereed Journals:-

1. Impacts of dark matter on the f-mode oscillation of hyperon star by H. C. Das, Ankit Kumar, S. K. Biswal and **S. K. Patra**, Phys. Rev. D (accepted).

2. Properties of hot finite nuclei and associated correlations with infinite nuclear matter by Vishal Parmar, Manoj K. Sharma, and **S. K. Patra**, Phys. Rev. C (under review).

3. Systematic study of surface properties for Ne, Na, Mg, Al and Si isotopes in a coherent density fluctuation model using the relativistic mean field formalism, J. A. Pattnaik, R. N. Panda, M. Bhuyan and **S. K. Patra**, Canadian J. Phys. (accepted); arXiv:2105.08999..

4. Isotopic shift and search of magic number in the superheavy region, Jeet Amrit Pattnaik, R. N. Panda, M. Bhuyan and **S. K. Patra**, Physica Scripta (accepted); arXiv:2106.03038.

5. Constraining the relativistic mean field models from PREX-2 data: effective forces re-visited, J. A. Pattnaik, R. N. Panda, M. Bhuyan and S. K. Patra, (communicated); arXiv:2105.14479.

6. Dark matter admixed neutron star as a possible compact component in the GW190814 merger event, H C Das, A. Kumar and **S. K. Patra**, Phys. Rev. D104 (2021) 063028.

7. Effect of dark matter on the inspiral properties of the binary neutron star, H C Das, A. Kumar and **S. K. Patra**, Monthly Notices of the Royal Astronomical Society **507** (2021) 4053; arXiv:2104.01815.

8. The BigApple force and its implications to finite nuclei and Astrophysical objects, Harish Das, Ankit Kumar, Bharat Kumar, S. K. Biswal and **S. K. Patra**, Int. J. Mod. Phys. E (accepted).

9. Incompressibility and Symmetry Energy of Neutron Star, Ankit Kumar, Harish Chandra Das and **S. K. Patra**, Phys. Rev. C104 (2021) 055804.

10. Thermal impacts on the properties of nuclear matter and young neutron star A. Kumar, H. C. Das, M. Bhuyan, **S. K. Patra**, Nucl. Phys. A 1015 (2021) 122315, arXiv:2103.11635

11. Rotating Neutron stars with Quark cores, I. A. Rather, U. Rahman, M. Imran, H. C. Das, A. A. Usmani and **S. K. Patra**, Phys. Rev. **C103** (2021) 055814; arXiv:2102.04067

12. Heavy magnetic neutron star, I. A. Rather, U. Rahman, V. Dexheimer, A. A. Usmani and **S. K. Patra**, Astrophys. J. 917 (2021) 46.

13. Hadron-Quark phase transition in the context of GW190814, I. A. Rather, A. A. Usmani and **S K Patra**, J. Phys. G48 (2021) 085201.

14. "Comments on the work entitled: Detail study of application of the relativistic mean-field effective NN forces for heavy-ion fusion within a dynamical model", M. Bhuyan, Raj Kumar and **S K Patra**, J. Phys. G48 (2021) 088001.

15. Decay dynamics of $^{9}Be + ^{89}Y$ reaction in view of complete and incomplete fusion mechanisms, Neha Grover, Vishal Parmar, **S. K. patra** and Manoj K. Sharma, Nucl. Phys. A1011 (2021) 122198.

16. Thermal effects in hot and dilute homogeneous asymmetric nuclear matter, Vishal Parmer, Manoj K Sharma and **S. K. Patra**, Phys. Rev. **C103** (2021) 055817.

17. The kinks in charge radii across N=82 and 126 revisited, M. Bhuyan, B. Maheshwari, H. A. Kassim, N. Yusof, **S. K. Patra**, B. V. Carlson and P. D. Stevenson, J. Phys. G48 (2021) 075105.

18. Role of microscopic temperature-dependent binding energies in the decay of ^{32}S as formed in the ^{20}O+^{12}C reaction, Manpreet Kaur, Bir-Bikram Singh and **S. K. Patra**, Phys. Rev. **C** (2021).

19. Effect of Oriented Nuclei on the Competing Modes of and One-Proton Radioactivities in the Vicinity of Z= 82 Shell Closure, S Kaur, B. B. Singh and **S. K. Patra**, Journal of Nuclear Physics, Material Sciences, Radiation and Applications **9** (2021) 31.

20. Application of the coherent density fluctuation model to study the nuclear matter properties of finite nuclei within the relativistic mean field formalism, Ankit Kumar, Harish Das, Manpreet Kaur, M. Bhuyan and **S. K. Patra**, Phys. Rev. **C103** (2021) 024305.

21. Symmetry energy and neutron pressure of finite nuclei using the relativistic meanfield formalism (https://doi.org/10.1002/asna.202113951), Nibedita Biswal, M. K. Abu El Sheikh, Deepanjali Behera, Subrat Kumar Biswal, Suresh Kumar Patra, Norhliza Yusof, Hassan Abu Kassim, Brett Vern Carlson and Mrutunjaya Bhuyan, Astronomical Notes (Astronomische Nachrichten), (2021): 1-7.

22. Nuclear matter properties of finite nuclei using relativistic mean field formalism, S K Biswal, M K Abu El Sheikh, N Biswal, N Yusof, H A Kassim, **S K Patra** and M Bhuyan Nucl. Phys. **A1004** (2020) 122042.

23. Exploring the -decay chain of $^{302}122$ within relativistic mean eld formalism, M Panigrahi, R N Panda, M Bhuyan, **S K Patra**, Canadian Journal of Physics, (2020).

24. Effect of inner crust EoS on Neutron star properties, Ishfaq Ahmad Rather, A A Usmani and **S. K. Patra**, Nucl. Phys. A1010 (2021) 122189.

25. Impacts of dark matter on the curvature of the neutron star, H. C. Das, A. Kumar, B. Kumar, S. K. Biswal and **S. K. Patra**, Journal of Cosmology and Astroparticle Physics 1 (2021) 007

26. Critical Properties of Symmetric Nuclear Matter in Low-Density Regime Using Effective-Relativistic Mean Field Formalism, Vishal Parmar, Manoj K. Sharma and **S K Patra**, J. Phys. G48 (2021) 025108.

27. Warm dense matter and cooling of supernovae remnants, Ankit Kumar, H. C. Das, S. K. Biswal, Bharat Kumar and **S. K. Patra**; arXiv: 2005.08320; European Physics Journal C80 (2020) 775.

28. Exploring the $\alpha-$decay chain of $^{302}122$ within relativistic mean field formalism, M. Panigrahi, R. N. Panda, M. Bhuyan and **S. K. Patra**, Canadian Journal of Physics 99 (2021) 412.

29. A bridge between finite and infinite nuclear matter, S. K. Biswal, S. K. Singh, M. Bhuyan, R. N. Panda and **S. K. Patra**, Canadian Journal of Physics (2020).

30. Effect of temperature on the volume and surface contributions in the symmetry energy of rare earth nuclei, Manpreet Kaur, A. Quddus, A. Kumar, M. Bhuyan and **S. K. Patra**, Nucl. Phys. **A1000** (2020) 121871.

31. Constraining Bag constant for Hybrid Neutron stars, Ishfaq A. Rather, A. A. Usmani, **S. K. Patra** and M. Imran, Int. J. Mod. Phys. E20 (2020) 2050044.

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