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Name with address: Sidharthasankar Panda Reader

- i. P.G Department of Physics
- ii. Berhampur University,
Berhampur-760004 Odisha,India
email:
- iii. sidhartha.physics@yhaoo.i
n Phone:+91 9437046336.

2. Area of Interest/Specialization : PARTICLE PHYSICS

3. RESEARCH INTEREST:

My research interests are in the field of hadron spectroscopy with a quark degree of freedom, which is currently under investigation. I investigated the heavy-light flavored mesons within the framework of the power potential, linear, and square root models using the Relativistic independent quark model, which was previously unexplored. As a result, it is critical to investigate the hadronic properties, including the various decays that result from these observations. This scheme, which is also suggested by the lattice calculations, has recently been investigated for its spectroscopy and decay constants, branching ratios, E1 and M1 transitions, and branching ratios, among other things. The results are very close to the experimental observations. To better match the experimental observations, we would like to extend our estimates for the D, B, B, Bc, Bc, charmonia, and bottomonia mesons.

Heavy quarkonia are mesons made up of heavy quarks (c and b) and their antiquarks (c and b), which are themselves made up of heavy quarks (c and b). Since the beginning of quantum chromodynamics, these systems have served as excellent laboratories for testing our theoretical ideas. I have also investigated exotic states that do not correspond to mesonic and baryonic quark combinations, such as gluon mixing with quark-antiquark and quark-gluon systems, as well as quark-antiquark systems. The baryon spectroscopy and magnetic moments are investigated within the quark model by employing the hyper-central description of the three-body system as a starting point. I have also investigated the possibility of the appearance of $\Delta(1232)$ isobars in neutron star matter and the so-called puzzle is investigated in a relativistic quark model where the confining interaction for quarks inside a baryon is represented by a phenomenological average potential in an equally mixed scalar-vector potential.

4. Research: 20 years

5. Teaching: 30 years

6. Qualifications: MSc. MPhil. Ph.D.

7. Administrative: HOD, P.G. Department of Physics, Berhampur University (from 01.06.17

to 31.05.2019 and 1.6.2021 till date)

8. Other Responsibilities Handled at Berhampur University:

- a. Superintendent of Rushikulya Boys Hostel 01.06.2014 to 31.5.2015
- b. Vice-President Athletic Association, Berhampur University -01.6.14 to 31.5.15
- c. Sports Council Secretary, Berhampur University- 01.6.15 to 01.8.17.
- d. Superintendent of Bansadhara Boys Hostel from 1.2,2029 to till date

9. National Level Assignments

- i. Patron member of Odisha Physical Society.

10. Ph.D. Scholars Produced, Scholar's Name with Topic

11. Sri Lingaraj Sahu - PhD Awarded.

12. Thesis: **STUDIES ON HOLOGRATING AS CONNECTOR AND MULTIPLEXOR FOR ELECTRONIC DEVICES.**

13. Mrs. Deepanjali Mishra, - PhD Awarded

- a. Thesis- **STUDIES ON OPTOELECTRONIC MANIPULATION OF SPIN IN PHOTONIC DEVICES.**

14. M. Phil/Ph.D/D.Litt. of Topic/Dissertations (Guided)

- a. Completed: 05 (M.Phil)
- b. Pursuing (Ph.D) : 04

15. Research Projects(Completed/ongoing): Nil

16 . Publications (Books/Edited/journals): 20

1. S.Behera, **S.Panda**, and L.K.Tripathy; Study of Mass Spectra and Decay Properties of D Meson In a Relativistic Independent Quark Model, PEPAN letters, Springer nature accepted 2021
2. **Sidhartha S. Panda**, H.R. Patnaik & Narendra Kumar, Fundamental of Physics- XI, Laxmi Publications (P) Ltd. New Delhi, June, 2018
3. **Sidhartha S. Panda**, H.R. Patnaik & Narendra Kumar, Fundamental of Physics- XII, Laxmi Publications (P) Ltd. New Delhi, June, 2018
4. B.K. Panda, **S. Panda**, " Leptonic Decay width of vector mesons in a relativistic Dirac formalism, Journal of atomic Nuclie, accepted for publication,2018".
5. **S.Panda**, International Journal of Advanced Research (Int. J. Adv. Res. 5(7), 906-916 (2017)
6. **S.Panda**, Int. J.Adv. Res. D. Vol-2 (5) 2017.
7. **S.Panda**, M.K Muni, B.Vasundhara and L.K. Tripathy, International journal of pure and applied physics Vol-12, No-1 (2016), p61-69.
8. **S.Panda**, B.K.Panda, Orissa Journal of Physics,vol-24,No.1(2017) .p-117-126.
An independent quark model study of weak leptonic decays of Pseudoscalar mesons, International Journal of Modern Physics A ,Vol.30.No.16.2015,

S.N.Jena, P.K.Nanda, S.Sahoo and **S.Panda**.

9. **S.Panda**, S.Das , M.K.Muni and P.K.Nanda :Magnetic Moment of Baryon, International Journal of Engineering Research and Science & Technology, Vol.3 No.3. 2014,.
10. S.N. Jena , H.H. Muni, P.K.Mohapatra and **S.Panda**;Baryon Resonance Spectra in Relativistic Potential of Independent quarks, Chinese Journal of Physics, Vol. 49. No.5. 2011.
11. S.N. Jena, K.P. Sahu and **S.Panda.**; Mesonic M1 Transitions in a Relativistic Potential Model. International Journal of Theoretical Ph., Group Theory, & Nonlinear Optics VI.9, No.3 PP 215-237.2002.
12. S.N. Jena, **S.Panda** and T.C. Tripathy.;A static calculation of radiative decay widths of measons in a potential model of independent quarks. Nuclear Physics A 658, 249-269. 1999 ,
13. S.N. Jena, M.R. Behera and **S. Panda.**;Mass spectrum of the ground-state baryons in a chiral quark model. J. Phys. G: Nucl. Part Phys. 24, 1089- 1103 UK.1998 .
14. by S.N. Jena, M.R. Behera and **S. Panda.**;Mass and decay constant of the (qq) - pion in a relativistic - potential model', of independent quarks. Pramana Journals of Phy. (Indian Academy of Science) Vo1.51, No.6 PP.711-725. 1998.
15. S.N. Jena, M.R. Behera and **S. Panda.**;Contributions of the Pion -Cloud to the Magnetic Moments of Nucleon Octet in a Relativistic Quark Model. International Journal of Modern Phy. E, Vol.7, No.4 425-440 © World Scientific Publishing Company. 1998 .
16. Mesonic M1 transitions in a relativistic potential model of independent quarks. J. Physics. G. Nucl. Part Phys.24 , 1869 1880 (UK) 1998 by S.N. Jena, **S.Panda** and J.N. Mohanty.
17. S.N. Jena, **S. Panda** and M. K. Muni;A Quark Model estimation of quark-pion coupling and nucleon-pion coupling constants, Indian Journal Physics 71A(6),669, 1997 by
18. S.N. Jena, M.R. Behera & **S. Panda** Ground-state baryon masses in an equally mixed scalar-vector linear potential model, Physical Review D, Vo1.54, 1996 .
19. S.N. Jena & **S.Panda** Magnetic Moments of Octet Baryons in a Relativistic Quark Model with Chiral Symmetry, International Journal of Modern Physics A, Vol No.25 4563-4576 © World Scientific Publishing Company, 1993.

20. S.N. Jena and S. Panda; Quark-Pion Coupling Constant in an independent - Quark Model with Chiral Symmetry, Modern Physics Letters A, Vol.8, No.7 607-617© World Scientific Publishing Company, 1993 .

17. Seminars/Conferences/Workshops/Refresher Courses Attended:

- Participated in National Seminar on "Ballistic- A Multidisciplinary Physical Science" and 32nd Annual Convention of Orissa Physical Society on 14-15 Feb-2015.
- Contributed a paper and participated in International Conference "ICFMST-15", 10th- 12th Dec-2015. NIST, Berhampur.
- Participated and presented a paper entitled "A Model Approach to climate change" on U.G.C funded National Seminar on "Green Env. For sustainable development" at T.S.College, B.Dpur,Ganjam held on 23.7.2016 to 24.7.2016.
- Delivered a seminar in Kshetramohan Science College Narendrapur, Narendrapur,Ganjam on 20.11.2016.
- Participated in the workshop cum training program in recent development and future trends of Bioinformatics in Biological Science on 26th – 27th December 2016 organized by P.G. Department of Zoology Berhampur University.
- Participated in National Seminar in 33rd Annual Convention of Orissa Physical Society on 15- 16th Feb-2016, Maharshi College, Bhubaneswar.
- Participated in National Seminar in 34th Annual Convention of Orissa Physical Society on 11- 12th Feb-2017,.P.G. Department Of Physics Berhampur University, Bhanja Bihar, Berhampur.
- Participated on workshop on physics experiments for CBCS Syllabus 23.8.2017 organized by P.G. Department of Physics, Berhampur University
- Participated and presented in the National Seminar and 35th Annual Convention of Orissa Physical Society on 10-11th Feb-2018, Department of Physics B.J.B. College, Bhubaneswar.
- Participated and present a paper on International seminar on Emerging Trends in Physics and Applicationa, 36th Convention of OPS at Parla Maharaja Engineering college,Berhampur from 2nd Feb to 4th February 2019.
- Participated and presented a paper in National Seminar on Recent Advances in

Physics 23rd March to 24th March 2019 organised by P.G Department of Physics,
Berhampur University.

S. PANDA