

1. Name: Dr. Pranab Kumar Bera
2. Designation: Principal
3. Department : Department of Physics
4. Date Of joining: 11.10.2018
5. Contact Address: 9732617441
6. Blood Group: O+
7. Date of birth: 06.04.1965
8. Email: pkbdc@gmail.com
9. Highest Qualifications: M.Sc., Ph. D.
10. Professional Membership:
- 11.



- a. Teaching Experience:
- b. Industry Experience:
- c. Research Experience:

12. Experience Details:

| <b>Teaching experience in college/university</b> |  |                        |                   |  |
|--|--|------------------------|-------------------|--|
| <b>Name of the institution</b>                   | <b>Date of joining and designation</b>               | <b>Post held up to</b> | <b>Duration</b>   | <b>Total length of teaching experience</b> |
| Dumkal College                                   | <b>Lecturer in Physics</b><br>from 20.04.2000        | 19.04.2004             | 4 Years           | 18 Years 04 months                         |
|  | <b>Senior Lecturer in Physics</b><br>from 20.04.2004 | 19.04.2009             | 5 Years           |  |
|  | <b>Reader in Physics</b><br>from 20.04.2009          | 31.10.2012             | 3 Years 06 months |  |
|  | <b>Associate Professor of Physics</b> 01.11.2012     | Till date              | 5 Years 9 months  |  |

| <b>Research experience in college/university/institute</b> |  |                        |                      |  |
|--|--|------------------------|----------------------|--|
| <b>Name of the institution</b>                             | <b>Date of joining and designation</b>     | <b>Post held up to</b> | <b>Duration</b>      | <b>Total length of research experience</b> |
| Visva-Bharati University                                   | J.R.F.<br>January, 1990                    | 1992                   | 3 Years              | 28 Years 8 months                          |
|  | S.R.F<br>1992                              | June 1995              | 2 years<br>6 months  |  |
| Kharagpur Traffic High School                              | Assistant Teacher In<br>Physics 26.06.1995 | 19.04.2000             | 4 years<br>10 months |  |
| Dumkal College   | Lecturer In Physics<br>20.04.2000          | Till date              | 18 Years<br>4 months |  |

| <b>Administrative experience in college/university/institute</b> |   |                        |                     |  |
|--|---|------------------------|---------------------|--|
| <b>Name of the institution</b>                                   | <b>Date of joining and designation</b>  | <b>Post held up to</b> | <b>Duration</b>     | <b>Total length of administrative experience</b> |
| Dumkal College   | 13.03.2015<br>Coordinator, IQAC   | Till Date              | 3 Years 4<br>months | 3 Years 4 months                                 |
|  | Member of G.B.  | 2003                   | 2007                | 5 Years <sup>+</sup>                             |
|  |   | 2017                   | Till Date           |  |
|  | Secretary, Teachers' Council  | 2007                   | 2012                | 5 Years  |
|  | Head, Library Committee   | 2000                   | Till Date           | 18 Years 4 months                                |
|  | Member, Purchase Committee  | 2000                   | Till Date           |  |
|  | Head, Routine Committee   | 2000                   | Till Date           |  |
|  | Head, Department of Physics   | 2000                   | Till Date           |  |
| Head, Exam Committee   | 2000  | Till Date              |                     |  |
| University of Kalyani  | Member, Board of Studies<br>(Under- Graduate Council,<br>Department of Physics) | 2016                   | Till Date           | 3 Years  |

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|-----|---------------------------------------|---|
| 13. | Area of Research:                     | Supersymmetric Quantum<br>Mechanics, Nuclear Physics,<br>Nonlinear Dynamics |
| 14. | Publications:                         |   |
| a.  | International Journal:                | 29  |
| b.  | National Journal:                     | Nil   |
| c.  | International Conference Proceedings: | Nil   |
| d.  | National Conference Proceedings:      | 01  |
| e.  | Number of Books / Books chapters:     | Nil   |
| 15. | List of Publication:                  |   |

a. List of Research paper published:

| Sl. No | Author(s)                                | Title  | Name of the Journal   |
|--------|--|--|---|
| 1      | P. K. Bera , S. Sarwardi and Md. A. Khan | Application of Homotopy Perturbation Method to an Eco-epidemic Model   | <i>International Journal of Ecological Economics &amp; Statistics</i> , Issue details will be available in January 2019( Ref. No. IJEES/MS030117) |
| 2      | P.K. Bera , S.K. Das , P. Bera           | A Study of Nonlinear Vibration of Euler-Bernoulli Beams Using Coupling Between The Aboodh Transform And The Homotopy Perturbation Method | International Journal of Computer Sciences and Engineering- V5(12),pp84-93(2017)E-ISSN: 2347-2693   |
| 3      | P.K. Bera , S.K. Das , P. Bera           | Applications of the Aboodh Transform and the Homotopy Perturbation Method to the Nonlinear Oscillators                                   | International Journal of Computer Sciences and Engineering- V6(1),pp1-10(2017)E-ISSN: 2347-2693   |
| 4      | P K Bera                                 | Three-body interactions and the Landau levels using Nikiforov-Uvarov method  | Pramana-J. Phys, V81,pp359(2013), ISSN:0304-4289  |
| 5      | P. K. Bera and T.Sil                     | Exact solutions of Feinberg-Horodecki equation for Time dependent anharmonic oscillator  | Pramana-J. Phys. V80,pp31(2013)ISSN:0304-4289   |
| 6      | P. K. Bera and T.Sil                     | Homotopy Perturbation Method in quantum mechanical problems  | Applied Mathemaics and ComputationV219,pp3272(2012 ),ISSN:0096-3003   |
| 7      | P. K. Bera                               | The exact solutions for the interaction $V(r) = \alpha r^{2d-2} - \beta r^{d-2}$ by Nikiforov-Uvarov method                              | Pramana-J. Phys. V78,pp667(2012),ISSN:0304-4289   |
| 8      | P. K. Bera                               | Approximate solutions of the Wei Hua oscillator using the Pekeris approximation and  | Pramana-J. Phys. V78,pp91(2012) ISSN:0304-4289  |

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|----|--|---|---|
|    |  | Nikiforov-Uvarov method   |   |
| 9  | J . Datta and P. K. Bera                             | Iterative approach for the eigen value problem  | Pramana -J. Phys. V76,pp47(2011)ISSN:0304-4289                  |
| 10 | P. K. Bera   | A study on nonlinear equation by homotopy perturbation method                         | Int. J. Nonlinear Science V10,pp422(2010) <b>ISSN:1749-3889</b> |
| 11 | P. K. Bera, J. Datta, M.M. Panja and T. Sil          | Generalization of quasi-exactly solvable and isospectral potentials                   | Pramana -J. Phys.V69,pp337 (2007)<br>ISSN:0304-4289             |
| 12 | P. K. Bera and J. Datta                              | Unified approaches for construction of PT-symmetric quasi-exactly solvable Potentials | Indian J. Phys. V81,pp377(2007)<br>ISSN:0973-1458               |
| 13 | P. K. Bera and J. Datta                              | Linear delta expansion technique for the solution of anharmonic oscillations          | Pramana-J. Phys. V68,pp117(2007),ISSN:0304-4289                 |
| 14 | P. K. Bera, J. Datta                                 | Spectral inverse problem for q-deformed harmonic oscillator                           | Pramana-J. Phys.V67, pp1023(2006),<br>ISSN:0304-4289            |
| 15 | P.K Bera   | Isospectral Interactions of the Potential $V(r) = \alpha r^{2d-2} - \beta r^{d-2}$    | Indian J. Phys. V79,pp887(2005),<br>ISSN:0973-1458              |
| 16 | T.K. Nandi, P. K. Bera, M. M. Panja and B. Talukdar  | Reply to the comment by Au  | J. Phys. A: Math. Gen. V30,pp1789(1997)<br>ISSN:1751-8113       |
| 17 | T. K. Nandi, P. K. Bera, M. M. Panja and B. Talukdar | The Dalgarno-Lewis method as a perturbation theory                                    | J. Phys. A: Math. Gen. V29,pp1101,(1996),<br>ISSN:1751-8113     |
| 18 | P. K. Bera, M. M. Panja , and B. Talukdar            | Isospectral interactions for three-body problems on the line                          | Int. J. Mod. Phys. A V11,pp2129(1996),ISSN:0217-751X            |

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|----|--|---|---|
| 19 | A. Bhattacharya, P. K. Bera,<br>M. M. Panja and<br>B. Talukdar | Quantum defects and atomic<br>core radii                                  | Phys. Rev. A V51,pp841(1995)<br>ISSN:2469-9926                      |
| 20 | M. M. Panja, P. K. Bera,<br>and B. Talukdar                    | Optical theorem and<br>Aharonov-Bohm scattering                           | Pramana –J. Phys.V42,pp499<br>(1995) ,<br>ISSN:0304-4289            |
| 21 | P. K. Bera,<br>S. Bhattacharya and<br>B. Talukdar              | Recurrence relations for N-<br>dimensional radial<br>wavefunctions        | Phys. Rev. A<br>V48,pp4764(1993)ISSN:2469-<br>9926                  |
| 22 | P. K. Bera, T. K.<br>Nandi and B.<br>Talukdar                  | Combined variable-phase<br>supersymmetric quantum<br>mechanics            | J. Phys. A: Math. Gen.<br>V26,pp L1073(1993)<br>ISSN:1751-8113      |
| 23 | P. K. Bera, S.<br>Bhattacharya and B.<br>Talukdar              | Spectral inverse problem in<br>supersymmetric quantum<br>mechanics        | Int. Mod. Phys. A<br>V8,pp4123(1993)<br>ISSN:0217-751X              |
| 24 | J. Datta, P. K. Bera<br>and B. Talukdar                        | On atomic Compton profile<br>calculations                                 | J. Phys. B: At. Mol-Opt.Phys.<br>V25,pp3261(1992)ISSN:0953-<br>4075 |
| 25 | B. Talukdar, U. Das,<br>C. Bhattacharya and<br>P. K. Bera,     | Phase-equivalent potential<br>from Supersymmetric quantum<br>mechanics    | J. Phys. A: Math. Gen.<br>V25,pp4073(1992),ISSN:1751-<br>8113       |
| 26 | P. K. Bera, U.<br>Das,C.Bhattacharya<br>and B. Talukdar        | On integral representations of<br>the Coulomb functions                   | J. Math. Phys.<br>V33,pp1403(1992)<br>ISSN:0022-2488                |
| 27 | P. K. Bera, A.K.<br>Jana, N. Haque and<br>B. Talukdar          | Coulomb correction to elastic<br>$\alpha$ - $\alpha$ scattering           | Phys. Rev. C<br>V43,pp818(1991),<br>ISSN:2469-9985                  |
| 28 | U. Das , B. Talukdar<br>and<br>P. K. Bera,                     | Integral representation for off-<br>shell Jost functions                  | Phys. Rev. C<br>V42,pp1144(1990),<br>ISSN:2469-9985                 |
| 29 | A.K. Jana, P. K.<br>Bera, U. Das and B.<br>Talukdar            | Phase-function method from<br>the Riccati form of<br>Schrödinger equation | J. Phys. A: Math.<br>Gen.V23,pp153(1990)<br>ISSN:1751-8113          |

**b. National Journal:**

| <b>Sl. No.</b> | <b>Title of the Paper presented</b>  | <b>Title of Conference/ Seminar/ Workshop/ Symposia</b>  | <b>Organized by</b>   | <b>Whether International/ National/ State/ Regional/College or University level</b> |
|----------------|--|--|---|---|
| 1.             | Role of Vapor and Cloud Droplets on Removal of Primary Pollutants Forming Secondary Species from the Atmosphere: A Model Study by Homotropy Mapping Method | UGC sponsored two-days International seminar on Ground water: Issues & Challenges of the 21 <sup>st</sup> century from | Department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., ( 29-30 <sup>th</sup> December, 2014)             | International   |
| 2              | Linear delta Expansion technique for the solution of quantum anharmonic oscillators  | National seminar on Generalizations and Approximation in Mathematics   | Department of Mathematics, Visva-Bharati University   | National  |
| 3              | Supersymmetric Solution of the Schrodinger Equation for Manning-Rosen Potential by using the Perkeris Aproproximation                                      | UGC sponsored State level National seminar on chemistry: Our life, our Future on                                       | Department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., (31 <sup>st</sup> January, 2012)                  | National  |
| 4              | Adomain Decomposotion Method For solving ENSO model  | UGC sponsored National seminar on Environmental Hazards hel, W.B.  | Department of Chemistry and Geography ,Dumkal college , Dumkal, Murshidabad (6 <sup>th</sup> & 7 <sup>th</sup> January, 2012) | National  |
| 5              | Solutions of the Manning –Rosen Potential for $l=0$ Through Perkeris Approximation and Nikifororov-Uvarov Method   | UGC sponsored National seminar on Current trend in chemistry   | organized by department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., (9-10 <sup>th</sup> February, 2012)  | National  |

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| 6  | Approximate Solutions of Kinetic Nonlinear Enzyme Reaction Equations Arising in Mathematical Chemistry | UGC sponsored two-days National seminar on Current trend in chemistry,                                     | Department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B. (23-24 <sup>th</sup> December, 2013)  | National    |
| 7  | Air-Sea Oscillation Model: A study by Homotopic Mapping Method   | National Symposium on Applied Nonlinear Dynamics and Chaos (ANDC-2014).                                    | Government College of Engineering & Textile Technology, Berhampore, Murshidabad, W.B. and Dumkal Institute of Engineering & Technology, Basantapure, Murshidabad, W. B (30 <sup>th</sup> May 2014) | National    |
| 8  | Studies on the film flow of a third grade fluid on an inclined plane using HPM                         | UGC sponsored National seminar on Recent advances in chemistry   | organized by department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., ( 21 <sup>st</sup> December , 2015)   | National    |
| 9  | Supersymmetric Quantum Mechanics   | UGC sponsored National seminar on Emerging Advances in Mathematics & Their Application in Natural Sciences | Organized by department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., (17 <sup>th</sup> December , 2016)  | National    |
| 10 | Nonlinear Schrodinger Equation and Its Importance in Optical Communications                            | UGC sponsored one day State Level seminar on Recent trends in Optoelectronics                              | Department of chemistry, Sripat Singh college , Jiaganj, Murshidabad, W.B., (3 <sup>rd</sup> February, 2012 )  | State level |

16. Sponsored Projects:

Minor Research Project:

I have completed and submitted the final report of a UGC Sponsored Minor Research Project(MRP) No. PSW\_63/12-13(ERO), Dated-05.02.2013. Title of the Project of the MRP is **Solutions of Nonlinear Dynamical Systems** using different perturbation

method. The final report of the MRP has been submitted on 25.06.2015

17. Number of M.Phil / MLIS thesis guided: Nil

18. Number of Ph.D. thesis guided: 01

**Research Guidance:**

I acted as a guide of a student named Joydip Datta for his Ph.D. degree. Joydip Datta was enrolled for Doctor of Philosophy in Visva Bharati University in the year 2011 and the title of his thesis is “Studies on Quantum Mechanical Two-body Problems”.

His Ph.D. degree was awarded on 27.04.2012.

19. Awards and Honors: Nil

20. Short term courses / Workshop organized: 01

21. Short term courses/ Workshop attended (Minimum One week): 02

| Sl. No. | Name of the short term training courses                   | Organized by   | Date  |
|---------|---|--|---|
| 1       | One week faculty development programme under TEQIP II     | Government College of Engineering & Textile Technology, Berhampore, Murshidabad, West Bengal and Dumas Institute of Engineering & Technology, Basantapur, Murshidabad, West Bengal | 26 <sup>th</sup> – 31 <sup>st</sup> May 2014        |
| 2       | TEQIP II Sponsored one week faculty development programme | Government College of Engineering & Textile Technology, Berhampore, Murshidabad, West Bengal   | 20 <sup>th</sup> to 24 <sup>th</sup> February, 2017 |

22. Area of Specialization: Supersymmetric Quantum Mechanics, Nuclear Physics, Nonlinear Dynamics

23. Additional academic or co- curricular activities undertaken : Nil