Curriculum Vitae (April 2022)

1 Personal Information

1. Name: Prasanta Kumar Das
2. Affiliation: BITS Pilani University, K K Birla Goa campus
3. Designation: Professor
4. Nationality: Indian
5. Phone: 0832-2580-448
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2 Academic Appointments

- 2021 - : Professor at BITS Pilani K K Birla Goa Campus, Goa
- 2015 - 2021 : Associate Professor at BITS Pilani K K Birla Goa Campus, Goa
- 2007 - 2015 : Assistant Professor at BITS Pilani K K Birla Goa Campus, Goa

3 Academic Preparations

- 2005 - 2007: Post-doctoral fellow, Institute of Mathematical Science, Chennai
- 2004 - 2005: Post-doctoral fellow, CYCU, Chung-Li, Taiwan, ROC
- 2002 - 2004: Post-doctoral fellow, Harish-Chandra Research Institute, Allahabad
- 1996 - 2002: PhD, Theoretical Physics, Indian Institute of Technology, Kanpur
- 1993 - 1995: M.Sc, University of Calcutta
- 1990 - 1993: B.Sc, University of Calcutta

4 Professional Accomplishments

1. Member of the Executive Council of the Square Kilometer Array (SKA)-India consortium.
2. Reviewer of DST SERB Project.
3. Referee of the International Journal European Physical Journal C(Area:Particles and Nuclear Physics).
4. Referee of Journal of Statistical Mechanics: Theory and Experimen (Area: Statistical Mechanics).
5. Reviewer of Journal Advances in High Energy Physics, Hindawi Publishing Group.
6. Reviewer of the journal Progress of Theoretical and Experimental Physics.

5 Administrative Experience

1. Associate Dean, Academic Research(PhD) Division(ARD) (Jan 2014 - April 2018) BITS Pilani, Goa Campus.
2. Chairperson, Higher Degree Counseling Committee, BITS Pilani, Birla Goa Campus (Jan 2014 - April 2018).
3. Local coordinator, Convener, Internal Quality Assurance Cell (Jan 2014 - April 2018), BITS Pilani, Goa Campus.
4. Resident Warden of AH-7 from 2009 to 2013.

6 Advisees

1. Ph.D. degrees awarded: Selvaganapathy J(2018), Atanu Guha(2020).

   Ph.D. (ongoing): Saumyen Kundu, Payel Sarkar, Manish Kumar Sharma, Ashmita Rai and Premachan Mahapatra.
2. Postdoctoral fellow supervised: Dr. Ravi S Manohar(2013).

7 Research Interests

I work in the area of High Energy Physics, Astrophysics and Cosmology. In particular, I am interested in

1. Looking for Astrophysical and Collider signatures of Dark matter, Extra dimension(s), space-time noncommutativity and supersymmetry.
2. Early Universe Cosmology - inflation, dark energy, modified gravity theory, bouncing and emergent cosmology.
3. Supernovae and Neutron Star Physics in the quest of New Physics.
4. Gravitational wave and its detection

8 Research Publications

1. **Inflationary cosmology- A new approach using Non-linear electrodynamics,**
   Payel Sarkar, Prasanta Kumar Das and Gauranga Charan Samanta (BITS Pilani, Goa campus)
   Physica Scripta. 96, 065305 (2021).
2. **Inferring the covariant θ-exact noncommutative coupling in the top quark pair production at linear colliders,**
   Selvaganapathy J, Partha Konar(PRL,Ahmedabad) and Prasanta Kr. Das (BITS Pilani Goa Campus)
   Journal of High Energy Physics(JHEP) 06, 108 (2019).
3. **Model-independent Astrophysical Constraints on Leptophilic Dark Matter in the Framework of Tsallis Statistics,**
   Atanu Guha(BITS-Pilani Goa Campus, Bhupal Dev (Washington University, USA) and Prasanta Kumar Das(BITS Pilani Goa Campus and University of Kansas, USA)
   Journal of Cosmology and Astroparticle Physics (JCAP) 02 (2019) 032.
4. **Constraints on Light Dark Matter fermions from relic density consideration and Tsallis statistics,**
   Atanu Guha and Prasanta Kumar Das, BITS-Pilani Goa Campus,
   Journal of High Energy Physics 06 (2018) 139.

5. **An Extensive Study of Bose-Einstein Condensation in Liquid Helium using q-deformed Statistics,**
   Atanu Guha and Prasanta Kumar Das, BITS-Pilani Goa Campus,
   Physica A 497 (2018) 272-284.

6. **q-deformed Einstein model to describe specific heat of solid,**
   Atanu Guha and Prasanta Kumar Das, BITS-Pilani Goa Campus,
   Physica A 495 (2018) 18-29.

7. **q-deformed statistics and the role of a light fermionic dark matter in SN1987A cooling,**
   Atanu Guha, Selvaganapathy J and Prasanta Kumar Das, BITS-Pilani Goa Campus,
   Phys.Rev.D 95:015001, 2017.

8. **Drell-Yan as an avenue to test noncommutative standard model at large hadron collider,**
   Selvaganapathy J, Prasanta Kumar Das (BITS-Pilani Goa Campus) and Partha Konar(PRL,Ahmedabad),
   Phys.Rev.D 93:116003, 2016.

9. **Search for associated production of Higgs boson with Z boson in the NCSM at linear colliders**
   J Selvaganapathy, Prasanta Kumar Das(BITS-Pilani Goa campus) and Partha Konar (PRL,Ahmedabad),
   Int. Journal of Modern Physics(IJMP) A 30:1550159, 2015.

10. **Probing space-time noncommutativity in the top Quark Pair Production at e+e- collider,**
    Ravi S Manohar, J Selvaganapathy and Prasanta Kumar Das (BITS Pilani Goa Campus),
    IJMPA 29:1450156, 2014.

11. **Tsallis statistics and the role of a light stabilized radion in supernovae cooling,** Prasanta Kumar Das, J Selvaganapathy, C. Sharma, T.K.Jha and V Sunilkumar (BITS-Pilani, Goa Campus),
    IJMPA 28:1350152, 2013. Impact factor: 1.7. No. of citation: 2.

12. **126 GeV Higgs boson pair production at the Linear Collider in the noncommutative space-time** Prasanta Kumar Das(BITS-Pilani Goa campus), Abhishodh Prakash (SUNY, Stonybrook, USA),
    IJMPA 28:1350004, 2013.

13. **Laboratory frame analysis of $e^+e^- \to \mu^+\mu^-$ scattering in the NC Standard Model,**
    Prasanta Kumar Das(BITS-Pilani, Goa), Abhishodh Prakash (SUNY, Stonybrook, USA),
    IJMPA, 27:1250141, 2012.

14. **The inclusive semi-leptonic $Bbar \to X_s\mu^+\mu^-$ and leptonic $\overline{B}_s \to \mu^+\mu^-$ decays in the presence of a light stabilized radion in Randall-Sundrum model,**
    Prasanta Kumar Das (BITS-Pilani Goa campus),
    Mod. Phys. Lett. A27:1250043, 2012.

15. **TeV Scale Implications of Noncommutative Space time in Laboratory Frame with Polarized Beams,**
    Sumit K. Garg (IISc,Bangalore), T. Shreecharan (Hyderabad U.), P.K. Das (BITS-Pilani, K K Birla Goa campus), N.G. Deshpande (Oregon U., USA),G. Rajasekaran (Chennai Math. Inst.),
    Journal of High Energy Physics(JHEP) 1107:024,2011.

16. **Neutral Higgs boson pair production at the LC in the Noncommutative Standard Model,**
    Prasanta Kumar Das, Abhishodh Prakash, Anupam Mitra, (BITS-Pilani Goa campus),
    Phys.Rev.D83:056002,2011.

17. **$e^+e^- \to \mu^+\mu^-$ scattering in the Noncommutative standard model,**
    Abhishodh Prakash, Anupam Mitra, Prasanta Kumar Das, (Birla Inst. Tech. Sci.-Pilani Goa campus)
    Phys.Rev. D82: 055020, 2010.

18. **Implication of the HyperCP boson X0 (214-MeV) in the FCNC processes,**
    Prasanta Kumar Das (BITS-Pilani Goa campus),
    Phys.Rev. D80:034017,2009.

19. **Plasmon Annihilation into Kaluza-Klein Graviton: New Astrophysical Constraints on Large Extra Dimensions?**
Prasanta Kumar Das (BITS-Pilani, K K Birla Goa campus) , V.H.Satheesh Kumar, P.K. Suresh, (Hyderabad U.)
Phys.Rev.D78:063011,2008.

20. **Moller and Bhaba scattering in the noncommutative standard model,** P.K. Das (BITS-Pilani, K K Birla Goacampus), N.G. Deshpande,(Oregon U. USA), G. Rajasekaran, (IMSc),
Phys.Rev.D77:035010,2008.

21. **Unparticle effects in Supernovae cooling,** Prasanta Kumar Das (BITS-Pilani Goa campus),
Phys.Rev.D76:123012,2007.

22. **Finding gamma from the eta-eta-prime mixing within QCD factorization,**
Prasanta Kumar Das (IMSc, Chennai)
Int.J.Mod.Phys.A22:2493-2511,2007. Impact factor: 1.7

23. **Muon anomaly and a lower bound on Higgs mass due to a light stabilized radion in the Randall-Sundrum model,**
P.K.. Das (Harish-Chandra Res. Inst.)
Int. J. Mod. Phys. A21:5205-5220,2006. Impact factor: 1.7

24. $\overline{B}_s \to \mu^- \mu^+$ **decay in the Randall-Sundrum model,** Basudha Misra, Jyoti P. Saha, Prasanta Kr Das(IMSc,Chennai),
Phys.Rev.D74:074011,2006.

25. **Neutral Z boson pair production due to radion resonance in the Randall-Sundrum model: Prospects at the CERN LHC,**
Prasanta Kumar Das (Taiwan, Chung Yuan Christian U.)
Phys.Rev.D72:055009,2005.

26. **Data for polarization in charmless** $B \to \phi K^*$**: A Signal for new physics?**
Prasanta Kumar Das, Kwei-Chou Yang, (Taiwan, Chung Yuan Christian U.) Phys.Rev.D71:094002,2005.
TOPCITE = 100

27. **On distinguishing radions from Higgs bosons,**
Prasanta Kumar Das (Taiwan, CYCU,Taiwan) , Santosh Kumar Rai, Sreerup Raychaudhuri, (IIT Kanpur)
Phys.Lett.B618:221-228,2005.

28. **The Effect of a light radion on the triviality bound on Higgs mass,**
Uma Mahanta, Prasanta Kr. Das (Harish-Chandra Res. Inst.)
Int.J.Mod.Phys.A20:1089-1093,2005.

29. **Implications of a light radion on beta(lambda) and beta(g(t)) and a lower bound on radion vev,**
P.K. Das, U. Mahanta, (Harish-Chandra Res. Inst.)
Mod.Phys.Lett.A19:1855-1861,2004.

30. **Testable muon g-2 contribution due to a light stabilized radion in the Randall-Sundrum model,**
Prasanta Kr. Das and Uma Mahanta, (Harish-Chandra Res. Inst.)
Nucl.Phys.B644:395-400,2002.

31. ρ **parameter constraints on radion phenomenology and a lower bound on Higgs mass,**
Prasanta Kr. Das (IIT Kanpur) , Uma Mahanta, (Harish-Chandra Res. Inst.),
Phys.Lett.B528:253-258,2002.

32. **Implication of a light radion on the RG evolution of Higgs self coupling in the Randall-Sundrum model,**
Uma Mahanta, (Harish-Chandra Res. Inst.) Prasanta Kumar Das(IIT Kanpur),
Phys.Lett.B520:307-312,2001.

33. **Cosmic birefringence within the framework of heterotic string theory,**
Prasanta Kr. Das, Pankaj Jain, Sudipta Mukherji, (Indian Inst. Tech., Kanpur),
Int.J.Mod.Phys.A16:4011-4024,2001.

34. **HERA constraint on warped quantum gravity,**
Prasanta Das, Sreerup Raychaudhuri, Saswati Sarkar, (Indian Inst. Tech., Kanpur),
JHEP 0007:050,2000.

35. **Dynamically gauge symmetry breaking in (SU(3))(L) x (U(1))(x) extension of the standard model,**
Prasanta Kr. Das, Pankaj Jain, (Indian Inst. Tech., Kanpur),
Phys.Rev.D62:075001,2000.

36. **Limits on exotic quarks in the SU(3) x U(1) extension of the standard model from SUSY search data,** Prashanta Kr. Das, Pankaj Jain (Indian Inst. Tech., Kanpur), Douglas W. McKay (Kansas U.),
Phys.Rev. D59 (1999) 055011.

9 Workshop/Conference/School/Meeting (organized)

1. The physics department of BITS-Goa recently has organised the "SERC Main school in Theoretical High Energy Physics(THEP), 2014". The school was from 20th December,2014 to 8th January,2015. I was the Director of the Main school.

2. The physics department of BITS-Pilani, K K Birla Goa campus recently organised the "Planning committee meeting of the DST, SERB SChool on THEP" on 13th October,2014. I was the Convenor of that meeting.

3. The physics department of BITS-Pilani, K K Birla Goa campus recently has organised the DSTPAC-2013 during the period April 22nd - 23rd, 2013. I was the Convenor of that meeting.

4. The physics department of BITS-Pilani, K K Birla Goa campus recently has organised the workshop HIGGSTOP-2013. The workshop was held from 25th February to 27th February, 2013. I was the Convenor of that workshop and member of the National Organizing Committee.

5. The physics department of BITS-Goa recently has organised the "SERC Preparatory school in Theoretical High Energy Physics(THEP), 2010". The school was from 20th Oct. to 15th Nov. 2010. Details of the school are available here. I was the Director(Joint) of that school.

6. The department of Physics recently organized the "GROUP MONITORING WORKSHOP ON FAST TRACK YOUNG SCIENTIST PROJECT IN PHYSICAL AND MATHEMATICAL SCIENCE" during 21-22 september,2009. Details of the workshop are available here. I was the Convenor of that workshop.

10 Participation in Workshop/Conference/School

10.1 National

1. "Model-independent astrophysical constraints on leptophilic Dark Matter in the framework of Tsallis statistics", Conference on "The First Billion Years of the Universe using Next Generation Telescopes", IIT Indore, 20th Jan - 24th Jan 2020.

2. "Nonlinear electrodynamics: a model of inflationary universe",Australia-India Research and Development in Radio Astronomy (ARDRA) meeting, Silver hills, Lonavalla, Pune, 13th - 15th Nov 2019.

3. I have participated in the International Meeting on High Energy Physics - 2019 which was held in IOP, Bhubaneswar during the period 17th - 22nd January 2019.

4. I have participated in the Annual meet of ASI-2018 held in Osmania University, Hyderabad as an Invited speaker of Hyderabad during the period 5 - 9 February 2018.

5. I have participated in the Indo-US workshop on Dark Matter and Dark Energy which was held in the University of Hyderabad during the period 16th-18th November,2016.

6. I have participated in the International workshop on the High Energy Physics Phenomenology(WHEPP XIV) that was held in IIT Kanpur during the period 4th-13th December,2015.

7. I have attended the International workshop on the High Energy Physics Phenomenology(WHEPP XII) that was held in Mahabaleswar, Pune. The workshop was from 2nd Jan,2012 to 15th Jan,2012.

8. Workshop on High Energy Physics Physics Phenomenology(WHEPP-9), IOP, Orissa,India (2006).

9. Workshop on High Energy Physics Physics Phenomenology(WHEPP-8), IITB, Mumbai, India (2004).

10. 6th ACFA workshop on Linear Collider, TIFR, Mumbai, India (2003).

11. SERC school on High Energy Physics, HRI, Allahabad, India (2001).

12. Fourteenth DAE High Energy Physics Symposium, Hyderabad, India (2000).

13. SERC school on High Energy Physics, SINP, Calcutta, India (2000).

10.2 International

1. Mini-workshop on Flavour Physics, Academicia Sinica, Taipei, Taiwan Dec. (2005).

2. Summer School on Cosmology and Astroparticle Physics, ASICTP, Italy (28th June - 10th July,2004).

3. Summer School on Astroparticle Physics and Cosmology, ASICTP, Italy (17th June - 5th July, 2002).

4. Conference on Physics of Extra Dimensions, ASICTP, Italy (3rd July - 6th July, 2000).

5. Summer School on Particle Physics and Cosmology, ASICTP, Italy (29th Jun - 17th July 1998).

11 Invited Lectures/Seminars

11.1 International

1. Tsallis statistics and its application in High Energy Physics and Atrophysics, June 22, 2018 at 3 PM, Department of Physics, Kansas State University, Kansas City, KS, USA

2. Nonequilibrium Statistical Mechanics, fermion dark matter and supernova SN1987A cooling, June 18, 2018 at 3:00 pm, 241 Compton, Department of Physics, Washington University in St. Louis, MO 63130 USA.

3. Nonequilibrium Statistical Mechanics and its Application in Astrophysics and Collider Physics May 29, 2018 at 12:00 Noon, Malott hall, Department of Physics and Astronomy, University of Kansas, Lawrence, USA.

4. B to phi K^* polarization puzzle and New Physics, Department of Physics, CYCU, Taiwan, R.O.C.(2005).

5. Radion signatures at the Large Hadron Collider, Department of Physics, University of Vienna, Austria (July, 2004).

6. The implication of a light radion in models of Warped Quantum Gravity, Department of Physics and Astronomy, University of Kansas, USA (2003).

7. Radion Phenomenology in models of warped geometry, Department of Physics, Syracuse University, USA, (2003).

8. Radion phenomenology in Brane World scenerio, Universit de Montral, Qubec, Canada H3C 3J7 (2003)

11.2 National

1. "Fermionic Dark Matter and SN1987A cooling", PRL Ahmedabad, March 2017.
2. "SN1987A cooling and Dark Matter", IIT Indore, March 2017.
3. Associated Higgs production in the noncommutative Standard Model, IISER Kolkata, January 2016.
4. NC phenomenology at the Linear Collider, ISI Kolkata, June 2015.
5. Moller and Bhabha scatterings in the noncommutative Standard Model, IISER,Kolkata, June,2009.
6. Some phenomenological studies in the noncommutative Standard Model, ISI, Kolkata, June,2009.
7. Higgs quartic coupling in the presence of a light stabilized radion and a lower bound on radion vev, S N Bose National Centre for Basic Sciences, SaltLake, Kolkata-700098, Oct, 2006 (under the TPSC programme).
8. Bs decay in the Randall-Sundrum model, Indian Statistical Institute,Kolkata-700035,India, Oct, 2006.
9. Bs decay in the Randall-Sundrum model, Saha Institute of Nuclear Physics, BidhanNagar,Kolkata-700064, Oct, 2006.
10. Phenomenology of a light stabilized radion. Department of Physics, Rajabazar Science College, University of Calcutta, Kolkata-700009, Oct, 2006.
11. Bs decay in the Randall-Sundrum model, Institute of Physics, Bhubaneswar, Orissa, INDIA - 751005, Nov, 2006.
12. Higgs quartic coupling in the presence of a light stabilized radion and a lower bound on radion vev, Department of Physics, University of Madras, Chennai, Sept, 2006.
13. Muon anomaly in the brane world scenario, Institute of Mathematical Sciences(IMSc), C.I.T Campus, Chennai in May, 2006.
14. Probing radion at Large Hadron Collider, A saga for New Physics. Department of Physics, IIT Chennai, TN in Feb, 2006.
15. The Higgs mass and the triviality bound in the Randall-Sundrum model. Department of Physics, IIT, Guwahati, Assam in 2005.
16. The Higgs mass and the triviality bound in the Randall-Sundrum model. Department of Physics, IIT Roorkee, Uttaranchal in 2005.
17. Triviality bound on Higgs mass in models of warped quantum gravity. Talk given at IISc, CTS (Bangalore) in 2004.
18. Triviality bound on Higgs mass in the Randall-Sundrum model. Talk given at IMSc (Chennai) as a TPSC speaker in 2004.