



GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS)

KUMBAKONAM – 612 001

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IV Cycle of Accreditation

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CRITERION VII – INSTITUTIONAL VALUES AND BEST PRACTICES

7.3. INSTITUTIONAL DISTINCTIVENESS

PRIMARY

1. Centre for Nonlinear Science (CeNSc) – Two Decades of Excellence in Research

Centre for Nonlinear Science (CeNSc) was established in the year 2005 under the auspices of the Department of Science and Technology with a seed grant of Rs. 8 Lakhs. The focus of the CeNSc is to investigate the impact of non-linearity in different branches of physics like hydrodynamics, optics, condensed matter physics etc. Situated in a semi urban area which stands isolated from hardcore research activities, CeNSc has grown into a full-fledged premier research institute with special emphasis on “Theoretical Physics/ Nonlinear Dynamics” on the lines of Institute of Mathematical Sciences, (I MSc), Chennai in a span of two decades. CeNSc has so far completed ten major sponsored research projects funded by DST, UGC, DAE-NBHM and CSIR worth to the tune of around 2 crores and has entered into thriving collaboration with leading institutes in India and abroad.




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SPONSORED PROJECTS HISTORY

S.No.	Funding Agencies	Title of the Project	Duration	Amount
1.	DST-CURIE	DST Consolidation of University Research for Innovation and Excellence in Women Universities (CURIE)	(2022-2025). (Ongoing)	Rs. 40,95,360/-
2.	DAE-NBHM	Investigation of PT-Symmetric and non PT-Symmetric variable coefficient Nonlinear Schrodinger type equations	2021-2024 (Ongoing)	Rs. 15,87,400/-
3.	CSIR	Exploring the Ultracold Atom Dynamics Through PT Symmetry	2019-2022. (Completed)	Rs. 35,68,910/-
4.	DAE-NBHM	A New Algorithm to study the variable coefficient Gross-Pitaevskii (GP) Type equations	2015-2018 (Completed)	Rs. 13,72,000/-
5.	CSIR	“Ultra cold atoms dynamics through a versatile analytical and Numerical approach	2015-2018 (Completed)	Rs. 11,50,000/-
6.	DST	Dynamics of Bose Einstein condensates with both short range and Long range interactions	2013-2015 (Completed)	Rs. 12,44,400/-
7.	UGC	Penetrating into the domain of the Bose Einstein Condensates	2011-2014 (Completed)	Rs. 9,36,800/-
8.	DAE – NBHM	Exploring the dynamics of Bose-Einstein Condensates through a new analytical approach	2011-2014 (Completed)	Rs. 11,68,180/-
9.	DST	Identification of Localized Excitations in Bose-Einstein condensates and their Interaction	2008-2011 (Completed)	Rs. 10,16,148/-
10.	UGC	Minor Research Project	2008-2010 (Completed)	Rs. 80,000/-
11.	DST	Localized Coherent Excitations in (2+1) Dimensional Nonlinear Systems	2005-2008 (Completed)	Rs. 8,10,600/-




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IT INFRASTRUCTURE AT CeNSc

S.No	Workstations with details	Configurations	NUMBER	Rate
1.	I9 Workstation	Intel Core i9 @9980x Processor, LGA 2066 X299 Series Motherboard, 64GB DDR 3000 RAM (4*16GB), 1 TB SSD Hard drive, 2 TB SATA Harddisk@7200RPM, Liquid Cooler(H100i), Nvidia Geforce GTX-1660 6G Graphics, Corsair 175R Cabinet, USB Keyboard & Optical Mouse, 27" 4k LED Monitor	1	3,05,500/-
2.	Z600 Workstation	Intel XEON E5607 2.26 SMB / 10664C CPU-1 Intel XEON E5607 2.26 SMB / 10664C CPU-2	1	1,97,000/-
3.	Z620 Workstation	HP Z640 Country Kit, HP Z 620 800W 90 Percent Efficient Chanis, HP Single Unit Packaging, 16GB DDR3 RAM, 1TB, 7200 RAM SATA HDD, HP USB Keyboard and Optical Mouse, Nivida QUADRO 410 512MB Graphics Card, HP 20" LED Monitor	1	3,56,400/-
4.	Z640 Workstation	HP Z640 Country Kit, HP Z640 9254 90 Percent Efficient Chanis, HP Linux Installer Kit, HP Single Unit Packaging 2k intel Xeon E5-2620V96 Core Processor @ 2.4GHz 1TB 7200 RPM SATA 1 st HDD 32GB DDR-2139(2*16GB) 2CPU registered RAM Nvidia 1 GB Graphics Card HP USB Keyboard, HB USB 1000DDPI Laser mouse 9.5 MMSLIM DVD-ROM 1 st ODD HP	1	3,49,000/-
5.	Book - Pro	Apple Mac	1	1,00,000/-
6.	Scanner	Cannon Scanner	1	3,900/-
7.	Laptop	HP Pavilion Laptop	1	53,499/-




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S.No	Workstations with details	Configurations	NUMBER	Rate
8.	I Pad	Apple I pad	1	90,800/-
9.	Printers	<ul style="list-style-type: none"> ➤ CANON LBP3300 DUPLEX PRINTER ➤ EPSON L3150 All in one Ink Tank Printer ➤ CANON IMAGE CLASS MF 4890 dw 	3	11,000/- 13,800/- 42,000/-
10.	Xerox Machine	SHARP AR 5516 Digital MFD	1	37,856/-
11.	Fax Machine	BROTHER Fax Cum Telephone Sno C8K 446002	1	6,200/-
12.	Air Conditioner	LG Air Condition (Model: LSB24K1RAB1)	1	35,500/-
13.	UPS	Microtek on-line UPS Max + 3KVA/72VDC ISO TX (Serial Nos: 23B20C4B34D00711)	1	1,12,000/-

PUBLICATIONS

International		National		Others
Journals	Conferences	Journals	Conferences	Books / Chapters / Monographs / Manuals
77	5	1	2	-

Citation Matrix

	Citations	h - index	i10 index
Google Scholar	1538	21	43
Scopus	1255	19	-
Web of Science	1238	19	-




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LIST OF PUBLICATIONS

(a) Journals

1. **R. Radha** and M. Lakshmanan, “Multisoliton generation in inhomogeneous nonlinear Schrödinger and Heisenberg Spin Systems”, *Chaos, Solitons and Fractals* **4**, 181 (1994).
2. **R. Radha** and M. Lakshmanan, “Singularity analysis and bilinear form of a (2+1) dimensional nonlinear Schrödinger (NLS) equation”, *Inverse Prob.* **10**, L29 (1994).
3. **R. Radha** and M. Lakshmanan, Singularity analysis and localized coherent structures in (2+1) dimensional generalized Korteweg-de Vries equations, *J.Math.Phys.* **35**, 4746 (1994).
4. **R. Radha** and M. Lakshmanan, “Dromion like structures in the (2+1) dimensional breaking soliton equation”, *Phys. Lett. A* **197**, 7 (1995).
5. **R. Radha** and M. Lakshmanan, “On the integrability and singularity structure aspects of deformed nonlinear evolution equations of AKNS type”, *J.Phys. A* **28**, 6977 (1995).
6. **R. Radha** and M.Lakshmanan, “The (2+1) dimensional Sine-Gordon equation: integrability and localized solutions”, *J. Phys. A* **29**, 151 (1996).
7. **R. Radha** and M. Lakshmanan, “Localized coherent structures and integrability in a generalized (2+1) dimensional nonlinear Schrodinger (NLS) equation”, *Chaos, Solitons and Fractals* **8**, 17 (1997).
8. **R. Radha** and M. Lakshmanan, “Exotic coherent structures in the (2+1) dimensional long dispersive wave (2LDW) equation”, *J.Math. Phys.* **38**, 292 (1997).
9. **R. Radha** and M. Lakshmanan, “A new class of induced localized coherent structures in the (2+1) dimensional nonlinear Schrödinger equation”, *J. Phys. A* **30**, 3229 (1997).
10. M. Lakshmanan and **R. Radha**, “Localized coherent structures of (2+1) dimensional generalization of soliton systems”, *Pramana* **48**, 163 (1997).
11. **R. Radha** and M. Lakshmanan, “Generalized dromions in the (2+1) dimensional Long dispersive wave (2LDW) and scalar nonlinear Schrödinger (NLS) equations”, *Chaos, Solitons and Fractals* **10**, 1821 (1999).
12. **R. Radha**, S. Vijayalakshmi and M. Lakshmanan, “Explode-Decay Dromions in the non- isospectral Davey-Stewartson I (DSI) Equation”, *J. Nonlinear Mathematical Physics* **6**, 120 (1999).





13. **R. Radha**, C. Senthilkumar and M. Lakshmanan, “Exponentially Localized Solutions in the Melnikov Equation”, *Chaos, Solitons and Fractals* **22**, 705 (2004).
14. **R. Radha**, C. Senthilkumar, M. Lakshmanan, X.Y. Tang and S.Y. Lou, “ Periodic and Localized solutions of the Long Wave-Short Wave Resonance interaction equation”, *J. Phys. A: Math. Gen.* **38**, 9649 (2005).
15. **R. Radha**, and S.Y. Lou, “Integrability and Novel Localized Solutions in the (2+1) dimensional generalized sasa-satsuma equation”, *Physica Scripta* **72**, 432 (2005).
16. **R. Radha**, X.Y. Tang and S.Y. Lou, “Painleve Truncation Method – A unified approach to exact solutions and Dromion Interactions of (2+1) Dimensional Nonlinear Systems”, *Z. Naturforsch* **62**, 107 (2007).
17. **R. Radha** and V. Ramesh Kumar, “Explode-Decay Solitons in the Generalized Inhomogeneous Higher order Nonlinear Schrodinger equations”, *Z. Naturforsch* **62**, 381 (2007).
18. **R. Radha** and V. Ramesh Kumar, “Bright Matter wave solitons and their collision in Bose-Einstein condensates”, *Phys. Lett. A* **370**, 46 (2007).
19. **R. Radha** and V. Ramesh Kumar, “Gauge equivalence of Gross-Pitaevskii equation and the Equivalent Heisenberg Spin Chain”, *Physica Scripta* **76**, 431 (2007).
20. **R. Radha**, “Induced explode –Decay Dromions in the nonisospectral (2+1) Nonlinear Schrodinger Equation”, *European Physical Journal D* **45**, 317 (2007).
21. V. RameshKumar, **R. Radha** and Prasanta K. Panigrahi, “Dynamics of Bose-Einstein condensates in a time dependent trap”, *Phys. Rev. A* **77**, 023611 (2008).
22. **R. Radha**, V. Ramesh Kumar and K. Porsezian, “Remote Controlling the dynamics of Bose Einstein condensates under time dependent trap”, *Journal of Physics A* **41**, 315209 (2008).
23. V. RameshKumar, **R. Radha**, M. Wadati, “Collisions of soliton in the Electromagnetically induced Transparency”, *Phys. Rev. A (Rapid Commun)* **78**, 041803R, (2008).
24. C. Senthilkumar, **R. Radha** and M. Lakshmanan, “Trilinearization and Localized solutions of (2+1) dimensional K-dV and NNV equations”, *Chaos, Solitons and Fractals* **39**, 942 (2009).





25. **R. Radha**, C. Senthil Kumar, M. Lakshmanan and C. R. Gilson, “The Collision of multimode dromions and a firewall in the two component long wave short wave resonance interaction Equation”, *Fast Track Communications, J. Phys. A* **42**, 102002 (2009).
26. V. Ramesh Kumar, **R. Radha** and Prasanta K. Panigrahi, “Matter wave interference pattern in the collision of bright solitons”, *Phys. Lett. A* **373**, 4381 (2009).
27. **R. Radha** and V. Ramesh Kumar, “Interplay between Nonlinearity and Dispersion in the Femtosecond NLS equation”, *Z. Naturforsch A* **65a**, 1 (2010).
28. **R. Radha**, V. Ramesh Kumar and Miki Wadati, “Line Soliton Dynamics and Stability Bose- Einstein Condensates in (2+1) GP equation”, *J. Math., Phys* **51**, 043507 (2010).
29. V.Ramesh kumar , **R. Radha**, and Miki Wadati, “Phase Engineering and Solitons of Bose Einstein Condensates with Two and Three Body Interaction”, *J. Phys. Soc. Jpn* **79**, 074005 (2010).
30. V. Ramesh Kumar, **R. Radha**, K. Porsezian, “Intensity redistribution and Shap Changing Collision in coupled femtosecond solitons”, *Eur. Phys. J. D* **57**, 387 (2010).
31. **R. Radha**, V.Ramesh Kumar ,Miki Wadati, “Collision of Bright Vector Solitons in Two component Bose Einstein Condensates”, *Phys. Lett. A* **374**, 3865 (2010).
32. H. J. Shin, **R. Radha**, V. Ramesh Kumar, “Bose-Einstein Condensates with spatially inhomogeneous interaction and bright solitons”, *Phys. Lett. A* **375**, 2519 (2011).
33. **R. Radha** , P.S.Vinayagam, “Stabilization of Matter wave solitons in weakly coupled atomic condensates”, *Phys. Lett. A* **376** , 944 (2012).
34. J.B. Sudharsan, **R. Radha** and P.Muruganandam, “Collisionally inhomogeneous Bose Einstein Condensates with both binary and three body interactions in a bichromatic optical lattice” . *J. Phys. B:At. Mol. Opt. Phys.* **46**, 015302 (2013).
35. **R. Radha**. P.S.Vinayagam and K.Porsezian, “Rotation the trajectories of the bright soliton and realignment of intensity distribution in the Coupled Nonlinear Schrodinger equation”, *Phy. Rev. E* **88**, 032903 (2013).
36. J.B. Sudharsan, **R. Radha** and A.Nicolin, “Faraday waves in Cigar shaped BEC with radially inhomogeneous scattering lengths”, *Rom. Rep. Phys* **65**, 820 (2013).
37. P. S.Vinayagam, **R. Radha** and K.Porsezian, “Taming of Rogue waves in Vector BECs”, *Phy. Rev. E* **88**, 042906 (2013).



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38. A.I. Nicolin, A. Balaz, J.B. Sudharsan, **R. Radha**, “Ground State of BEC with Inhomogeneous Scattering length”, *Rom. J. Phys.* **59**, 204 (2014).
39. **R. Radha**, P.S. Vinayagam, H.J. Shin. and K. Porsezian, “Spatiotemporal Binary interaction and Designer quasi particle condensates”, *Chinese Physics B* **23(3)**, 034214 (2014).
40. **R. Radha**, P. S.Vinayagam and K. Porsezian, “Soliton Dynamics of Spatially coupled vector BECs”, *Rom. Rep. Phys.* **66**, 427 (2014).
41. A. Balaz, R. Paun, A.I. Nicolin, J. B. Sudharsan, R. Radha, “ Faraday waves in collisionally inhomogeneous Bose-Einstein condensates”, *Phys. Rev. A*, **89**, 023609 (2014).
42. V. Ramesh Kumar, Lin Wen, **R. Radha** and W. M. Liu, “Splitting and recombination of 2d matter-wave solitons in a transient trap”, *Rom. Rep. Phys.* **66**, 443 (2014).
43. **R. Radha**, P.S.Vinayagam, “An analytical window into the world of Ultracold atoms”, *Rom. Rep. Phys.* **67**, 89 (2015).
44. P. S. Vinayagam, **R. Radha**, Vivek M. Vyas and K.Porsezian, “Generalized gauge transformation approach to construct dark solitons of coupled Nonlinear Schrodinger type equations”, *Rom.Rep. Phys.* **67**, 3 (2015).
45. J. B. Sudharsan, **R. Radha**, H. Fabrelli, A. Gammal and B. A. Malomed, “Stable multiple vortices in collisionally inhomogeneous attractive Bose-Einstein condensates”, *Phys. Rev. A* **92**, 053601 (2015).
46. **R. Radha**, P.S.Vinayagam, J. B. Sudharsan and W. M. Liu, “Engineering bright solitons to enhance lifespan and stability of Vector BECs”, *Phys. Lett. A* **379**, 2977 (2015).
47. **R. Radha**, P.S.Vinayagam, J. B. Sudharsan and B.A. Malomed, “Persistent bright solitons of sign indefinite coupled nonlinear schrodinger equation with time dependent trap”, *Communications in Nonlinear Science and Simulations* **31**, 30 (2016).
48. J. B. Sudharsan, **R. Radha**, M. C. Raportaru, A. I. Nicolin and A. Balaz, “Faraday and Resonant waves in binary collisionally inhomogeneous Bose-Einstein Condensates”, *J. Phys. B: At. Mol. Opt. Phys.* **46**, 165303 (2016).
49. P. S. Vinayagam, **R. Radha**, K. Porsezian, “Manipulation of light in a generalized coupled Nonlinear Schrodinger equation”, *Communications in Nonlinear Science*




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and Simulations **37**, 354, (2016).

50. K. Subramanian, C. S. Kumar, **R. Radha** and T. Alagesan, “Elusive noninteracting localized solutions of (2+1) Maccari equation”, *Romanian Reports in Physics* **69**, 2, (2017).
51. P. S. Vinayagam, **R. Radha**, S. Bhuvaneshwawri, R. Ravishankar and P. Muruganandam, “Bright soliton dynamics in Spin Orbit-Rabi coupled Bose-Einstein Condensates”, *Communications in Nonlinear Science and Simulations* **50**, 68, (2017).
52. P. S. Vinayagam, **R. Radha**, A. K. Usama and L. Ling, “Collisional dynamics of solitons in the coupled PT symmetric nonlocal nonlinear Schrödinger equations”, *Communications in Nonlinear Science and Simulations* **52**, 1, (2017).
53. H. Frabrelli, J. B. Sudharsan, **R. Radha**, A. Gammal, and Boris A. Malomed, “Solitons under spatially localized cubic-quintic-septimal nonlinearities”, *J. Optics* **19**, 7, (2017).
54. P. Albares, P. G. Estevez, **R. Radha** and R. Saranya, “Lumps and Rogue waves of Generalized Nizhnik Novikov Veselov Equation”, *Nonlinear Dynamics* **90**, 2305, (2017).
55. P. S. Vinayagam, **R. Radha**, U. Al Khawaja, Liming Ling, “New classes of solutions in the Coupled PT Symmetric Nonlocal Nonlinear Schrodinger Equations with Four Wave Mixing”, *Communication in Nonlinear Science and Numerical Simulation* **59**, 387 (2018).
56. **R. Radha**, C. SenthilKumar, R. Saranya, “Inelastic Dromions, Rogue Waves and Lumps of (2+1) dimensional Long Dispersive Wave Equation”, *Wave Motion* **85**, 114 (2019).
57. **R. Radha**, C. Senthil Kumar, K. Subramanian, T. Alagesan, “Drone like Dynamics of Dromion Pairs in the (2+1) AKNS equation”, *Computers and Mathematics with Applications* **75**, 2356 (2018).
58. **R. Radha**, C. SenthilKumar, “Digging into the Elusive Localized solutions of (2+1) dimensional sine-Gordon equation”, *Z. Naturforschung A* **73**, 415, (2018).
59. T. A. Gadzhimuradov, A. M. Agalarov, **R. Radha**, B. Tamil Arasan, “Dynamics of solitons in the fourth-order nonlocal nonlinear Schrödinger equation”, *Nonlinear Dynamics* **99**, 1295 (2019).
60. V. Rajadurai, V. Rameshkumar, **R. Radha**, “Multiple bright and dark solitons in three component spinor Bose-Einstein condensates”, *Phys. Lett. A* **384**, 126163



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(2019).

61. S. Sabari, O.T. Lekeufack, **R. Radha**, T.C. Kofane, “Interplay of three-body and higher- order interactions on the modulational Instability of Bose-Einstein Condensate” *JOSA B* **37**, A54 (2020).
62. Tamil Arasan Bakthavatchalam, Suriyadeepan Ramamoorthy, Malaikannan Sankarasubbu, **R. Radha**, Vijayalakshmi Sethuraman, “Bayesian Optimization of Bose-Einstein Condensates”, **Scientific Reports (Nature) 11, 5054 (2021)**.
63. S. Bhuvanewari, R. Muthuganesan and **R. Radha**, “Robustness of measurement-induced correlations under decoherence effect”, *Int. J Theor. Phys.* **60**, 2145 (2021).
64. S. Bhuvanewari, R. Muthuganesan and **R. Radha**, “Spotlighting Quantum Phase Transition in Spin -1/2 Ising-Heisenberg Diamond Chain Employing Measurement- Induced Nonlocality”, *Physica A* **573** , 125932 (2021).
65. S. Sabari, R. Tamil Thiruvalluvar, **R. Radha**, “Modulation instability of spin-orbit-coupled Bose-Einstein condensates in discrete media”, *Phys. Lett. A* **418**, 127696 (2021).
66. S. Bhuvanewari, R. Muthuganesan and **R. Radha**, “Signatures of intrinsic decoherence and weak measurements on quantum correlations”, *Laser Phys. Lett.* **19**, 015204 (2022).
67. Sabari Subramaniyan, Kishor Kumar Ramavarmaraja, **R. Radha**, and Boris A Malomed “Interplay between binary and three-body interactions and enhancement of stability in trapless dipolar Bose-Einstein condensates”, *Applied Sciences* **12**, 1135 (2022).
68. **R. Radha**, C. SenthilKumar, “Localized excitations and their collisional dynamics in (2+1) dimensional Broer-Kaup-Kupershmidt equation” , *Romanian Reports in Physics* **74**, 104 (2022).
69. Tamil Arasan Bakthavatchalam, Selvakumar Murugan, Suriyadeepan Ramamoorthy, Malaikannan Sankarasubbu, **R. Radha**, Boris A. Malomed and Vijayalakshmi Sethuraman, “Primer on solving differential equations using Machine learning techniques”, *Romanian Report in Physics* **74**, 113 (2022).
70. S. Sabari, R. KishorKumar, **R. Radha**, P. Muruganandam, “Stability of Polariton-Exciton Bose-Einstein Condensate”, *Phy. Rev. B* 105, 224315 (2022).




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71. S. Bhuvaneshwari, R. Muthuganesan and **R. Radha**, “Quantum correlations and coherence in Unruh-deWitt detector”, *Physica A* **604**, 127934 (2022)
72. P. Naveena, S. Bhuvaneshwari, R. Muthuganesan and **R. Radha**, “Quantum correlations in mixed spin-(1/2,1) Heisenberg dimer”, *Journal of Magnetism and Magnetic Materials* **563**, 169863 (2022).
73. **R. Radha**, Sudhir Singh, C. Senthil Kumar and Sen Yue Lou, “Elusive Exotic Structures and their Collisional Dynamics in (2+1)-Dimensional Boiti-Leon-Pempinelli Equation”, *Physica Scripta* **97**, 125211 (2022).
74. R. Muthuganesan, S. Bhuvaneshwari, and **R. Radha**, “Characterizing nonclassical correlations of tensorizing states in a bilocal scenario”, *Quantum Inf. Process* **22**, 44 (2023).
75. S. Bhuvaneshwari, R. Muthuganesan and **R. Radha**, “Thermal quantum correlations and Teleportation in a Graphene Sheet”, *Applied Physics B* **129**, 73 (2023).
76. B. Tamizharasan, S. Meiyazhagan, **R. Radha**, S. Vijayalakshmi and B. A. Malomed, “Data-driven Multi-valley Dark Solitons of Multi-component Manakov Model using Physics-Informed Neural Networks”, (*Chaos, Solitons and Fractals*, 172, 113509, 2023).
77. K. Rajaswathi, S. Bhuvaneshwari, **R. Radha** and P. Muruganandam, “Dispersion engineering in spin-orbit coupled spinor condensates driven by negative masses” (*Phys.Rev.A*.108,033317, 2023).

(b) Conference Proceedings:

- 1) **R. Radha** and B. Tamilarasan, Analytical signature of ultra cold atoms, at “Recent Trends in Material Sciences” Annamalai University, Chidambaram, on 30th Oct 2018.
- 2) V. Ramesh Kumar, **R. Radha** and Miki Wadati, Collision of solitons in the Electromagnetically Induced Transparency, International Conference on Cold Atoms (ICCA), pp. 21, Dec.12-16 (2008), Kolkatta, India.
- 3) **R. Radha**, V. Ramesh Kumar and K. Porzejian, Remote controlling the dynamics of Bose- Einstein condensates through time dependent atomic feeding and trap, International Conference on Cold Atoms (ICCA), pp.(38-39) Dec.12-16 (2008), Kolkatta, India.




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- 4) V. Rameshkumar, **R. Radha** and Prasant K. Panigrahi, Dynamics of Bose-Einstein Condensates in a Time-dependent trap, Nonlinear Dynamics: Concepts and Applications, Ed.M. Daniel and S. Rajasekar, (pp.129-132), 2009.
- 5) C. Senthil Kumar, **R. Radha** and M. Lakshmanan, New Localized Coherent Structures and Periodic Solutions of the (2+1) -dimensional KdV equation, Proceedings of the National Conference on Nonlinear System and Dynamics, RIASM, University of Madras, Chennai, India (2006) pp 7-10.
- 6) C. Senthil Kumar, **R. Radha** and M. Lakshmanan, Singularity structure Analysis and Exponentially Localized Solutions of a (2 + 1) dimensional Non-linear Evolution equation, Proceedings of the First National Conference on “Nonlinear Systems and Dynamics”, Center for Theoretical Studies, Indian Institute of Technology, Kharagpur, India (2003) pp 29-32.
- 7) M. Lakshmanan and **R. Radha**, Solitons and Inverse Scattering in (2 + 1) dimensions, Proceedings of the Symposium on plasma science and Technology, K. P. Maheswari (Ed.) (Wiley – Eastern, New Delhi, 1992).

BOOK PUBLISHED:

- P. Muruganandam and **R. Radha**, “An Introduction to Ultracold Atoms with Analytical and Numerical Methods ” UK, 2023 (Under Preparation).

ACTIVITIES RELATING TO PROMOTION OF SCIENCE IN TAMIL NADU

Centre for Nonlinear Science (CeNSc), a premier research institute established by **Dr. R. Radha** came into being in 2005 under the patronage of Department of Science and Technology (DST). In a span of over a decade and a half, it has now grown into a full-fledged, internationally reputed research institute with infrastructural facilities on par with the Institute of Mathematical Sciences (IMSc), Chennai. In a semi urban town like Kumbakonam which is far away from the core research activities, CeNSc is offering a huge platform for motivated young researchers to explore their potential in nonlinear science. CeNSc has so



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far completed eight major research projects sponsored by DST, DAE-NBHM, CSIR and UGC and there are two ongoing major research projects funded by CSIR and DAE-NBHM. **Dr. R. Radha** has so far mobilized resources to the tune of more than 1.5 crores through these projects for carrying out research in nonlinear science. CeNSc under the stewardship of **Dr. R. Radha** has entered into thriving collaborations with reputed research institutes in India and abroad (Japan, China, South Korea, New Zealand, UK, Israel, UAE, Romania, Spain, Serbia etc).

On the teaching front, **Dr. R. Radha** had recently organized a webinar on " Virtual Physics Laboratory" as a lockdown initiative and the virtual contents were uploaded in (<https://youtu.be/LYiVTFQb4Uc>) for the benefit of Physics teachers and Undergraduate/Postgraduate students.

This will certainly help Physics teachers across the country to take laboratory experiments to the doorstep of the students virtually.

DETAILS OF BENEFICIARIES

Name of the Student	Area of Research	Name of the University/ Institute	Present Status
V.RAMESH KUMAR	Scalar Bose – Einstein Condensates & their Dynamics	Bharathidasan University, Tiruchirappalli.	Asst.Professor, Velammal Engineering College, Chennai.
P.S.VINAYAGAM	Vector Bose–Einstein Condensates & their stability	Bharathidasan University Tiruchirappalli.	Asst.Professor, PSG College of Arts and Science, Coimbatore.




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J.B.SUDHARSAN	Collisionally Inhomogenous Bose-Einstein Condensates	Bharathidasan University Tiruchirappalli.	Asst.Professor, Chennai Institute of Technology(CIT), Chennai.
Mr.V. RAJADURAI	Spinor Bose Einstein Condensates	Bharathidasan University Tiruchirappalli.	-
Dr.R.TAMIL THIRUVALLUVAR	BECs in Discrete Media (Post Doctoral Fellowship)	Bharathidasan University Tiruchirappalli.	Guest Lecturer Kundavai Naachiar Govt.College for Women(A), Thanjavur.
Dr.S.BHUVANESWARI	Quantum Information Science	Bharathidasan University, Tiruchirappalli.	-
Dr.S. SABARI	Bose Einstein Condensates with Long range interactions (Post Doctoral Fellowship)	Bharathidasan University Tiruchirappalli.	Post Doctoral Fellow, University of Sao Paulo, Brazil.
Mr.B. TAMILARASAN	Machine Learning	Bharathidasan University Tiruchirappalli.	Software Engineer, SAAMA AI Lab, Chennai
Mr.K. SUBRAMANIAN	Truncated Painleve Approach	Bharathidasan University Tiruchirappalli.	Assistant Professor, S.R.M Institute, Chennai
MS.R. SARANYA	(2+1) Nonlinear pdes	Bharathidasan University Tiruchirappalli.	-
MS.G. PONMALAR	BECs in Discrete Media	Bharathidasan University Tiruchirappalli.	-
MR.C. SENTHIL KUMAR	(2+1) Dimensional Soliton	Bharathidasan University Tiruchirappalli.	Professor & Head Vinayaka Mission's Deemed University, Salem.

TIE - UPS AND COLLABORATIONS:

(a). International Collaboration

- 1) Shanghai Jiao Tong University Shanghai, China
- 2) University of Tokyo, Tokyo, Japan
- 3) University of Glasgow, UK




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- 4) University of Kung Kee, Seoul, South Korea
- 5) University of Bucharest, Romania
- 6) University of Serbia, Serbia
- 7) University of Beijing, Chinese Academy of Sciences, Beijing, China
- 8) University of Sao Paulo, Brazil
- 9) University of Tel Aviv. Israel
- 10) University of Salamanca, Spain
- 11) University of AL Ain, UAE
- 12) Institute of Physics, Russian Academy of Science, Makhachkala 367 003, Russia
- 13) University of Cameroon, Cameroon, South Africa
- 14) University of Dunedin, New Zealand
- 15) Instituto de Alta Investigacion, Universidad de Tarapaca, Casilla 7D, Arica 1000000, Chile.

(b). National Collaboration

- 1) IMSc, Chennai.
- 2) IISER, Kolkata.
- 3) Central University of Pondicherry, Pondicherry.
- 4) Bharathidasan University, Tiruchirappalli.
- 5) SASTRA, Thanjavur
- 6) Presidency College, Chennai
- 7) VMKVEC, Salem
- 8) SAMA Artificial intelligence Lab, Chennai
- 9) Velammal Engineering College, Chennai




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(c). Distinguished Visitors

S.No	Name	Country
1	Dr.Alexandru I Nicolin	University of Bucharest, Romania.
2	Dr. Mihelea Carina Raportaru	University of Bucharest, Romania.
3.	Prof. Yvehe Kosman Swarchbach	Ecole Polytechnique, Paris.
4	Prof. M Lakshamanan	Bhatnagar Laureate 1992, Bharathidasan University, India.
5	Prof. K Prochezhian	Pondicherry University, India.
6	Dr. P Muruganandam	Bharathidasan University, India.
7	Dr .M Senthilvelan	Bharathidasan University, India.
8.	Dr. S. Lakshmi Bala	IIT, Madras
9.	Dr. Prof. R.Sriram	University of Madras
10.	Prof. V.Balakrishnan	IIT, Chennai
11.	Prof.R.Simon	IMSc, Chennai (Bhatnagar Laureate 2001)
12.	Prof. K.P.N. Murthy	IGCAR, Kalpakkam
13.	Prof. Dr. N.Bhaskaran	NIT, Tiruchirappalli




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2. DST – CURIE INSTRUMENTATION FACILITY (D – CIF)

ABOUT D-CIF

DST-CURIE Instrumentation Facility (D-CIF) at Government College for Women(Autonomous), Kumbakonam was established in 2022 under the auspices of Department of Science and Technology(DST), Government of India. The focus of D-CIF is to facilitate students hailing from rural areas to get an access to sophisticated equipments with nominal charges in their pursuit of higher education. D-CIF which is equidistant from Annamalai University, Chidambaram and Bharathidasan University, Tiruchirappalli has become a boon to the students hailing from the neighbourhood of the college without having to travel around 100 kms from their residence

PRINCIPAL INVESTIGATOR

1. **Dr.R.Radha Principal Investigator**

E-mail : radha_ramaswamy@gcw.ac.in

CO- INVESTIGATOR

2. **Dr.F.Kurus Malai Selvi, Co-Principal Investigator**

E-mail : f.kurusmalaiselvi@gcw.ac.in




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SANCTION ORDER



Er. Pawan Kumar
Officer-in-charge
CURIE Programme
Phone: 011-26590290
E-mail: pawan.kumar@nic.in

भारत सरकार
विज्ञान और प्रौद्योगिकी मंत्रालय
विज्ञान और प्रौद्योगिकी विभाग
टेक्नोलॉजी भवन, नया मेहरौली मार्ग
नई दिल्ली-110 016

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRALI ROAD
NEW DELHI-110 016

Dated: 15 March, 2022

D.O. No: DST/CURIE-PG/2022/54

Subj: "CURIE Care Grant for Women PG Colleges"

Dear Dr. Radha Ramaswamy,

This is with reference to your presentation made in the Programme Advisory Committee (PAC) meeting of 'Consolidation of University Research for Innovation and Excellence (CURIE)' Programme.

I am pleased to inform you that PAC has recommended your proposal for 3 years' support under CURIE of WISE-KIRAN Division. The list of recommended components by PAC are mentioned below:

Recurring:	Project Assistant @Rs.22,000/- (consolidated)
Human Resource:	Rs. 4.00 lakh (including one smart class)
Infrastructure Facilities:	Rs. 5.00 lakh
Consumables:	Rs. 1.00 lakh
Contingencies:	Rs. 2.00 lakh (including travel of Expert-Mentor)
Travel:	Rs. 2.00 lakh
Networking Facilities:	

Non-Recurring:
Equipment: Online UPS, Photocatalytic Reactor, Portable Photoluminescence Spectrometer, UV Visible Spectrometer (Rs. 16.00 lakh)

In order to further process your case for issue of financial sanction, you are requested to submit the following documents at the earliest:

- Certificate from the Head of the Institution where the said project will be implemented (in attached format);
- Duly signed Conflict of Interest Policy (in attached format);
- Target and Timeline (in attached format);
- Name of the official in the host institution in whose name grant should be sent;
- PFMS-Unique Code of host institute and Darpan Portal ID (in case of NGO);
- **Interest bearing Bank Account** details of the host institute including Institute name as per bank record, Account No., Bank name, Branch and IFSC code endorsed by the Registrar/Finance Officer/Competent authority;
- Certificate from Institute's authority regarding use of EAT (Expenditure Advance Transfer) module in PFMS (submit screenshot of PFMS EAT Module of institute)
- Quotations and consolidated list with price for approved pieces of equipment;
- Name, address, contact details and bio-data of nodal officer at college for CURIE Project.

As per GFR 17, it is mandatory to keep GOI grant in interest bearing account and reflect interest in Utilization Certificate. Project fund would not be transferred in failing of interest bearing account details.

We shall process your case for financial sanction once we receive the above documents/clarifications from you. Please note that a project starts only after it is accorded financial sanction by DST.

Looking forward to receiving your reply and with best regards.

Yours sincerely,

(Pawan Kumar)



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11/21/22, 9:28 AM <https://pfms.mca.gov.in/Sanction/SanctionPayeeDetails.aspx?id=ToAQDEUGlssXh5X019g>

Public Financial Management System-PFMS
 (Formerly CPMS)
 O/o Controller General of Accounts, Ministry of Finance

Welcome: **PAWAN KUMAR**
 User Type: **PD**
 Financial Year: **2022-2023**

Language: English
 Help

- Adhoc Reports
- Scheme Wise Contact Details
- Home
- CAH Reports
- User Manuals
- Masters
- Users
- Agency
- Sanctions
- Pre Sanction
- Sanction Custom Fields
- Printing Templates
- Sanction Templates
- Employee Info. System
- Reports
- Masters
- My Schemes
- Agencies
- My Funds
- Scheme Allocation
- Register / Track Issue
- Utilisation Certificate
- OLD UC

Payee Details

Controller:	007-SCIENCE AND TECHNOLOGY	Sanction Status:	Approved
Sanction Number:	057/CURIE-PG/2022/54 (0)	Sanction Date:	21/11/2022
Sanction Type:	Transfer (DOO Bill)	Sanction Amount:	1417360
IFD Number:	IPD/C/201602/51/01357	IFD Date:	25/10/2022
Scheme:	1517-Science and Technology, Institutional and Human Capacity Building	PAC:	050296-PA00ST, New Delhi
DDO:	250837-DEPARTMENT OF SCIENCE & TECHNOLOGY (INCLUDING, NCST)	Remarks:	1st Release

North East Expenditure

Account Details

Grant	Department (For I/T Grants Only)	Function Head	Object Head	Category	Amount	External PAC	Available Budget
000 - Department of Science and Technology		3425402004901 - DISHA PROGRAMME FOR WORKING IN SCIENCE	31 - GRANTS-IN-AID GENERAL	5 - VOTED	1417360		1076217253

Agency	Bank Account No	Amount	Instrument Type
TECHNOLOGY DEVELOPMENT BOARD, DEPARTMENT OF SCIENCE AND TECHNOLOGY	60414917025 - SCIENCE AND TECH	1,417,360.00	RTGS

Payment Details

Accredited Bank:	UNION BANK OF INDIA	Amount:	1417360	Not Payable Before:	Required
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Party Name	IFSC Code	Party Account No.	Amount	Payee Remarks
SCIENCE AND TE	MAI0000362X	60414917022	1417360	1st Release

Note: If the IFSC Code is not automatically shown it means bank A/C is not validated. If payment process is urgent please key in the IFSC Code and process payment. Please ensure IFSC Code is correct.

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DR. S. P. / PAVAN KUMAR
 Head of Scheme / Controller
 Department of Science and Technology
 O/o Controller General of Accounts
 New Delhi - 110018

P. Kumar



S. P. ARORA
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UV VISIBLE SPECTROPHOTOMETER



DESCRIPTION

- ✓ 207-25700-58 New Shimadzu UV-VIS Spectrophotometer, UV-1900i
- ✓ 071-60845-01 CORD SET, 3VTJ1/3VTJA2.4M
- ✓ 226-89001-00 UV 10mm Cell GS Kit
- ✓ USB Cable

USES

- ✓ It is the best analytical tool for quantitative and qualitative analysis of samples for various research field. It is easy to use, reliable, robust and fast.

STATUS : ACTIVE



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PHOTO LUMINESCENCE PL 100



DESCRIPTION

✓ **MARUTEK MODEL : PL 100-Portable
Photoluminescence Spectrometer**

USES

- ✓ To determine Band Gap, impurity levels and defect detection, Recombination mechanisms material quality and molecular structure and crystallinity.
- ✓ Research and Development Laboratories
It is used to carry out a photochemical reaction, water splitting and photo chlorination reaction.

STATUS : ACTIVE



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PHOTO CATALYTIC REACTOR (PCR)



DESCRIPTION

**CLASSIC MODEL UN VISIBLE
LAMP 450W
INBUILT UV/VISIBLE LAMP
POWER SUPPLY WATT - 450W
DIGITAL MAGNETIC STRRER
WITH TIMER
OUTER METAL SHELL (SAFETY
CABINET)**

USES

**It is a device that uses light (photons) to
perform a chemical reaction.**

STATUS: ACTIVE



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TARIFF STRUCTURE

S.NO	FACILITY	PG-STUDENTS	RESEARCH SCHOLAR	FACULTY
1	UV-VISIBLE Spectrophotometer	75/-	100/-	125/-
2	Photoluminescence Spectroscopy	100/-	150/-	175/-
3	Photo Catalytic Reactor	1250/- Per Sample	1750/- Per Sample	1750/- Per Sample
		(0-30) Minutes- Rs.250 (30-60) Minutes- Rs.250 (60-90) Minutes- Rs.250 (90-120) Minutes- Rs.250 (120-150) Minutes- Rs.250	(0-30) Minutes- Rs.350 (30-60) Minutes - Rs.350 (60-90) Minutes- Rs.350 (90-120) Minutes- Rs.350 (120-150) Minutes- Rs.350	

✓ Payment can be made through UPI /Netbanking and the details are given below:

Bank : State Bank of India
Branch : Kumbakonam
Address : 138, 139, TSR Big Street
IFSC : SBIN0000864
CIF NO. : 80743450175
Account No. : 10923056199
Account Name : CHAIRMAN OLD STUDENTS' ASSOCIATION

The Characterization fee can also be paid directly into the above account.
Applications should be accompanied by evidence of payment.



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