

BIO-DATA

Name : Dr. Sudha
Father's name : Late A. Raghavendra Shenoy
Address for correspondence : Associate Professor,
Department of P.G. Studies in Physics,
Kuvempu University,
Shankaraghatta-577451
Phone: 9449968098
E-mail: arss@rediffmail.com
1967.shenoy@gmail.com

Educational Qualification:

Course	Year	University	Subject	Marks obtained	Grade
S.S.L.C.,	1983	K.S.E.E.B	General	74%	First Class
P.U.C	1985	P.U. Board	Physics Chemistry Mathematics Biology	74%	First Class
B.Sc.,	1988	University of Mysore	Physics Chemistry Mathematics	77.3%	First Class 6th Rank
M.Sc.,	1990	University of Mysore	Physics	72.5%	First Class 4th Rank
Ph.D.,	1999	University of Mysore	Theoretical Physics		

Title of the thesis: *Some Algebraic Aspects of Relativity and Polarization Optics:*

Research Guide: Prof. A.V. Gopala Rao, Formerly Professor,
Department of Physics, University of Mysore,
Manasagangothri, Mysore 570006, INDIA

LIST OF PUBLICATIONS

1. **On the algebraic characterization of a Mueller matrix in Polarization Optics. I. Identifying a Mueller Matrix from its N-matrix**

Gopala Rao A.V., Mallesh K.S. and **Sudha**, *Journal of Modern Optics*, **45**, No. 5, 955–987 (1998)

2. **On the algebraic characterization of a Mueller matrix in Polarization Optics. II. Necessary and Sufficient conditions for Jones-derived Mueller matrices**

Gopala Rao A.V., Mallesh K.S. and **Sudha**, *Journal of Modern Optics*, **45**, No.5, 989–999 (1998)

3. **Polarization Elements—A Group Theoretical Study**

Sudha and Gopala Rao A.V., *Journal of Optical Society of America A*, **18**, No. 12, 3130–3134 (2001)

4. **Non-Local Properties of a symmetric two qubit system**

A.R. Usha Devi, M.S. Uma, R. Prabhu and **Sudha**, *Journal of Optics B: Quantum and Semiclassical Optics*, **7**, S740–S744 (2005)

5. **Local Invariants and Pairwise Entanglement in Symmetric Multiqubit Systems**

A.R. Usha Devi, M.S. Uma, R. Prabhu and **Sudha**, *International Journal of Modern Physics B*, **20**, No. 11–13, 1917–1933 (2006)

6. **Positive-operator-valued-measure view of the ensemble approach to Polarization optics**

Sudha, A.V.Gopala Rao, A.R. Usha Devi and A.K.Rajagopal, *Journal of Optical Society of America A*, **25**, No. 4, 874–890 (2008)

7. **Entropic characterization of separability in Gaussian states**

Sudha, A.R. Usha Devi and A.K.Rajagopal, *Physical Review A* **81**, 024303 (2010)

8. **Loss of exchange symmetry in multiqubit states under Ising chain evolution**

Sudha, Divyamani B.G and A.R. Usha Devi, *Chin.Phys.Lett.* Vol. 28, No. 2, 020305 (2011)

9. **Open-system quantum dynamics with correlated initial states, not completely positive maps, and non-Markovianity**

A.R. Usha Devi, A.K.Rajagopal and **Sudha**, *Physical Review A* **83**, 022109 (2011)

10. Quantumness of correlations and entanglement

A. R. Usha Devi, A. K. Rajagopal and **Sudha**, *International Journal of Quantum Information*, **9**, Nos. 7 & 8, 1757-1771 ((2011))

11. Spin squeezing and quantum correlations

A. R. Usha Devi, **Sudha**, *Asian Journal of Physics*, Vol. 20, No.2 &3 131-142 (2011)

**12. Monogamy of quantum correlations in three-qubit pure states
Sudha**

A. R. Usha Devi and A. K. Rajagopal, *Physical Review A*, **85**, 012103 (2012)

13. Interplay of Quantum Stochastic and Dynamical Maps to Discern Markovian and Non-Markovian Transitions

A.R. Usha Devi, A.K. Rajagopal, **Sudha Shenoy**, **R.W. Rendell**, *Journal of Quantum Information Science (JQIS)*, **2**, 47-54 (2012)

14. Majorana representation of symmetric multiqubit states (Review article)

A. R. Usha Devi, **Sudha** and A. K. Rajagopal, *Quantum Information Processing*, **11**, 685-710 (2012)

15. Quantum discord and classical correlation can tighten the uncertainty principle in the presence of quantum memory

Arun K. Pati, Mark M. Wilde, A. R. Usha Devi, A. K. Rajagopal and **Sudha**, *Physical Review A* **86**, 042105 (2012)

16. Magnetically induced pairwise thermal entanglement in qubit chains with Ising interaction

B. G. Divyamani and **Sudha**, *Kuvempu University Science Journal*, **3**, 46 (2012)

17. Is composite noise necessary for sudden death of entanglement?

K. O. Yashodamma and **Sudha**, *Results in Physics* **3**, 41-45 (2013)

18. Macrorealism from entropic Leggett-Garg inequalities

A.R. Usha Devi, H. S. Karthik, **Sudha** and A. K. Rajagopal, *Physical Review A* **87**, 052103 (2013)

19. Thermal Entanglement in a Two-qubit Ising chain subjected to Dzyaloshinsky-Moriya Interaction

B.G. Divyamani and **Sudha**, *Chinese Physics Letters* **30**, 120301 (2013)

20. Equivalence of classicality and separability based on P phase-space representation of symmetric multiqubit states

A.R. Usha Devi, A. K. Rajagopal, **Sudha**, H. S. Karthik and J. Prabhu Tej, *Quantum Information Processing*, **12**, 3717-3723 (2013)

21. From the quantum relative Tsallis entropy to its conditional form: Separability criterion beyond local and global spectra

A. K. Rajagopal, **Sudha**, Anantha S. Nayak and A.R. Usha Devi, *Physical Review A*, **89**, 012331 (2014)

22. Purification and redistribution of entanglement via single local filtering

K. O. Yashodamma, P.J. Geetha and **Sudha**, *International Journal of Quantum Information*, **1**, 145004 (2014)

23. Effectiveness of depolarizing noise in causing sudden death of entanglement

K. O. Yashodamma, P.J. Geetha and **Sudha**, *Quantum Information Processing*, **13**, 2551 (2014)

24. What Does Monogamy in Higher Powers of a Correlation Measure Mean?

P.J. Geetha, **Sudha** and A.R.Usha Devi *Journal of Modern Physics*, **5**, 1294 (2014)

25. Quantum which-way information and fringe visibility when the detector is entangled with an ancilla

J. Prabhu Tej, H.S. Karthik, A.R. Usha Devi, **Sudha** and A.K. Rajagopal, *Physical Review A*, **89**, 062116 (2014)

26. Monogamous nature of symmetric N-qubit states of the W class: Concurrence and negativity tangle

P.J. Geetha, K. O. Yashodamma, and **Sudha**, *Chin.Phys.B* Vol.24, No.11, 110302 (2015)

27. Bipartite separability of symmetric N-qubit noisy states using conditional quantum relative Tsallis entropy

Anantha S. Nayak, **Sudha**, A. K. Rajagopal and A.R. Usha Devi, *Physica A*, **443**, 286--295 (2016)

28. Local Unitary Invariant Spin-Squeezing in Multiqubit States

Divyamani B.G, **Sudha** and A.R. Usha Devi, *International Journal of Theoretical Physics*, **Vol. 55**, No. 5, 2324--2334 (2016)

29. Physics Training and Talent Search Programme—Meeting Report

R. Rangarajan, G. Rajasekaran, S.V.M. Satyanarayana,
M. Sivakumar and **Sudha**, *Current Science*, **111**, No. 3, 10-11
(2016)

30. Biseparability of noisy pseudopure, W and GHZ states using conditional quantum relative Tsallis entropy

Anantha S. Nayak, **Sudha**, A. R. Usha Devi and A. K. Rajagopal,
Quantum Information Processing, DOI 10.1007/s11128-016-1491-9
(2017)

31. Comparitive analysis of entanglement measures based on monogamy inequality

P.J. Geetha, **Sudha** and K.S. Malleesh, *Chin.Phys.B*, Vol.26, No.5,
050301 (2017)

32. N-term pairwise-correlation inequalities, steering, and joint measurability

H.S. Karthik, A.R. Usha Devi, J. Prabhu Tej, A. K.
Rajagopal, **Sudha** and A. Narayanan, *Physical Review A*, **95**,
052105 (2017)

33. One parameter Family of Werner-Popescu states: Bipartite Separability using Conditional Quantum Relative Tsallis Entropy

Anantha S. Nayak, **Sudha**, A. R. Usha Devi and A. K. Rajagopal
Journal of Quantum Information Science, Vol 8, 12--23 (2018)

34. Spin Squeezing in symmetric multiqubit states with two non-orthogonal spinors

K.S.Akhilesh, B.G.Divyamani, **Sudha**, A.R. Usha Devi and K.S.
Malleesh, *Quantum Information Processing*, **18**, 144(1)–144(15)
(2019)

35. Spin squeezing in Dicke-class of states with non-orthogonal Spinors

K.S.Akhilesh, K.S.Malleesh, **Sudha** and Praveen G. Hegde,
Accepted for publication in the journal
Chinese Physics B on 8th April 2019

01	PUBLICATIONS :	Published		Accepted/ In Press	
		National	International	National	International
Research Papers :		03	31		01
Total No. of Citations			391		
Impact factor Range			0.833---2.965		
h-index			11		
i-10 index			11		
Research Gate			23.54		
Books :		Study Material on Quantum Mechanics: Published by Directorate of Distance Education, Kuvempu University	Study Material on Mathematical methods in Physics (Written in Self Instructional Mode) for M.Sc., students of Directorate of Distance Education, Kuvempu University		

02	RESEARCH PROJECTS :				
Name of the Research Project	PI/Other(s)	Date of Commencement	Date of Completion	Funding Agency	Amount Sanctioned
Minor Research Project	Principal Investigator	2007	30/09/2008	Kuvempu University	38,000/-

03	AWARDS /FELLOWSHIP/ MEMBERSHIP IN ACADEMIC BODIES/ SOCIETIES AND EDITORSHIP OF REPUTED JOURNALS :	
Name of the Body/Society		Name of Award/Fellowship/Nature of Membership/Editorship
D.C. Pavate Memorial Foundation, Karnatak University, Dharwad in association with Sydney Sussex College, Cambridge, U.K		D.C. Pavate Visiting Fellowship to do Post-Doctoral Research at Department of Applied Mathematics and Theoretical Physics (DAMTP), University of Cambridge, Cambridge, U.K. for four months from 01/09/2010 to 31/12/2010.
Organizers of the Two-Day Meet on ' Teaching of the Sciences in Higher Education ', Bangalore University		Best Poster Award

04	CONFERENCES/SEMINARS/WORKSHOPS/SYMPOSIA/TRAINING PROGRAMMES ATTENDED :	
Year	Conference/Seminars/Workshops Symposia/Trainings attended	Title of paper presented/ Delivered Lecture/ Chaired Sessions
2019	Resource Generation Camp, Physics Olympiad Programme conducted at Homi Bhabha Centre for Science Education (TIFR), Mumbai from 09/02/2019 to 13/09/2019	Resource Person
2018	One Day Conference of Pavate Fellows (2000-2018) organized by Dr. D.C. Pavate Memorial Foundation, Karnatak University, Dharwad on 17 th November 2018	Paper Presentation: ``Usefulness of Majorana representation of symmetric multiqubit states in discerning monogamy of entanglement, monogamy of correlations and spin squeezing''
2018	Resource Generation Camp, Physics Olympiad Programme conducted at Homi Bhabha Centre for Science Education (TIFR), Mumbai from 25/09/2018 to 27/09/2018	Resource Person
2016	Two-Day Meet on `Teaching of Sciences in Higher Education', Bangalore University, Bangalore from 27/05/2016 to 28/05/2016	Paper Presentation: Innovative methods of conducting experiments in Undergraduate and Postgraduate Laboratories: A New model introduced by the workshop PTTS-2015
2016	Two-Day `National Workshop on Theoretical Physics' held at Alva's College, Moodabidri (26 th , 27 th February 2016)	Participated
2015	Refresher Course in Experimental Physics organized by Indian Academy of Sciences, Bangalore from 14/04/2015 to 29/04/2015	Participated
2015	Indo-French Symposium on Women in Science organized by the French embassy, CEFIPRA and Indian Academy of Sciences, Bangalore at Indian Institute of Science from 03/02/2015 to 05/02/2015	Participated
2014	Discussion Meeting on Quantum Measurements-2014'(DMQM-2014) organized at the Indian Institute of Science, Bangalore from 23/10/2014 to 25/10/2014	Participated

2014	U.G.C sponsored National Seminar on Astrophysics and Quantum Mechanics at Milagres College, Udupi on 01/08/2014	Resource Person Fundamentals of Quantum Mechanics
2014	Refresher Course for Physics Teachers conducted by Academic Staff College, Bangalore	Resource Person Quantum Statistical Mechanics (Two lectures)
2014	The First International School on Quantum Information Processing organized by Institute of Mathematical Sciences, Chennai from 19/01/2014 to 31/01/2014	Participated
2013	International Workshop on Quantum Information Processing and Applications (QIPA-2013) held at Harishchandra Research Institute (HRI), Allahabad from 2/12/2013 to 8/12/2013	Invited Talk Local Unitary Invariant Spin-Squeezing criteria for multiqubit states
2013	13th Asian Quantum Information Science Conference held at the Institute of Mathematical Sciences, Chennai from 25/08/2013 to 30/08/2013	Participated
2013	Refresher Course in Statistical Physics by the Indian Academy of Sciences in collaboration with Nehru Arts and Science College, Kanhangad, Kerala from 08/05/2013 to 21/05/2013	Participated
2013	International Conference on Quantum Information and Quantum Computation (ICQIQC-2013) held at Indian Institute of Science during 6 th –11 th January 2013	Invited Talk Macrorealism from entropic Leggett-Garg inequalities
2012	Workshop on Theoretical Physics Lectures organized by IASc., Bangalore, INSA, Delhi, NASI, Allahabad in collaboration with University of Mysore, Mysore from 8/11/2012 to 10/11/2012	Participated
2012	International Workshop on Quantum Information (IWQI-2012) held at Harishchandra Research Institute (HRI), Allahabad during 20 th –26 th February 2012	Invited Talk Monogamy of Quantum Correlations
2011	International School and Conference on Quantum Information held at Institute of Physics, Bhubaneshwar from 19 th – 22 nd December 2011	Paper Presentation (Oral) Open system quantum dynamics and signatures of non-Markovianity

2011	Inter-University Subject Based Conference jointly organized by Vision Group of Science & Technology and the Dept. of Physics and Electronics, Karnatak University, Dharwad on 29 th , 30 th June 2011	Participated
2011	Two-Day Workshop on preparation of Self Instructional Material (SIM) organized by the Directorate of Distance Education, Kuvempu University in collaboration with DEC, IGNOU, New Delhi from 23/04/2011 to 24/04/2011	Participated
2011	International School and Conference on Quantum Information Processing and Applications (QIPA-2011) held at Harishchandra Research Institute, Allahabad during 14 th —20 th February 2011	Paper Presentation (Poster) Pairwise entanglement in thermal states of Quantum Ising Chains
2009	Refresher Course in Theoretical Physics conducted by the Indian Academy of Sciences in collaboration with Bishop Moore College, Mavelikara, Kerala from 7/12/2009 to 19/12/2009	Participated
2009	UGC sponsored Two-Day Training Programme on Computer Concepts, Operating System & Internet conducted by Instrumentation Maintenance Centre, Kuvempu University from 3/12/2009 to 4/12/2009	Participated
2007	Two-Day Workshop on preparation of Self Instructional Material (SIM) organized by the Directorate of Distance Education, Kuvempu University in collaboration with DEC, IGNOU, New Delhi from 17/12/2007 to 18/12/2007	Participated
2005	UGC sponsored State Level Seminar on Einsteinian Physics-A Retrospect organized by JSS College for Women, Mysore on 16 th , 17 th November 2005	Participated
2005	Two-Day Workshop on Frontier Areas of Physics organized by Dept. of Post-Graduate Studies in Physics, Kuvempu University on 7 th , 8 th November 2005	Participated
2004	SERC School on Quantum Information and Quantum Optics conducted at Physical Research Laboratory, Ahmedabad from 01/02/2004 to 14/02/2004	Participated

2000	SERC School on “Special Functions and Functions of Matrix Argument” conducted by the Centre for Mathematical Sciences, Trivandrum from 29/05/2000 to 30/06/2000	Participated Adjudged as the third Best Participant of the Course
1995	SERC School on Coherence and Correlations in Modern Optics and Quantum Physics organized by the Institute of Mathematical Sciences, Madras from 23/01/1995 to 10/02/1995	Participated
1994	Inter-University Graduate School on “Large Scale Structure in the Universe” held at the Department of Studies in Physics, University of Mysore, Mysore from 21/11/1994 to 10/12/1994	Participated
1993	The Winter School on “Manifolds and Physics” held at the Department of Physics, Bharatidasan University, Tiruchirapalli from 21/12/1992 to 09/01/1993	Participated

05	R5ESEARCH GUIDANCE :			
	Completed (Ph.D)	05	Ongoing (Ph.D)	02
	Completed (M.Phil)	03	Ongoing(M.Phil)	
06	EXPERIENCE IN ADMINISTRATIVE POSITIONS :			
1	Faculty Advisor, Working Women’s Hostel, Jnanasahyadri Campus, Kuvempu University from November 2006 to September 2010 (4 years)			
2	Co-Ordinator, Career Counselling Cell, Kuvempu University from January 2012 to September 2016 (4 years)			
3	Co-ordinator, Women’s Resource Centre, Kuvempu University from June 2015 to March 2016			
4	Co-ordinator, Women’s Study Centre (UGC), Kuvempu University from April 2016 to March 2017			

07	ANY OTHER RELEVANT INFORMATION :	
Sl. No.	Details	
1	A Kannada article on the life and achievements of Professor Stephen Hawking , as an obituary to the illustrious scientist who passed away on 14 th March 2018, is published in the Kannada Magazine `Samajamukhi` , April 2018	
2.	A review article in kannada, on the book entitled `` BRIEF ANSWERS TO THE BIG QUESTIONS '' by Professor Stephen Hawking , (John Murray Publishes, London) is published in the Kannada Magazine `Samajamukhi` , February 2019	
3	Worked as the Local Co-Ordinator for an All India Level 15 day workshop ` Physics Training and Talent Search(PTTS-2015) conducted at Kuvempu University from 17/12/2015 to 30/12/2015 for Final year B.Sc., (Physics) students from colleges across India. The Workshop was funded by Scientific Institutions such as HRI, Allahabad, IMSc., Chennai, TIFR-TCIS, Hyderabad, Science Education Panel, Indian Academy of Sciences, Saha Institute of Nuclear Physics, Kolkata. 47 students from different parts of the country participated in the Workshop.	
4	A Kannada article on Ludwig Boltzmann, a pioneer scientist has been published in the Science Journal, Vijnana Karnataka (Volume Nos. 38—40, Page No. 103—114, (2012)) published by Prasaranga, University of Mysore	
5	A Kannada article on the life and achievements of a great teacher, Prof. K.N. Srinivasa Rao, formerly Professor of Theoretical Physics , University of Mysore (Translation of an English article written by Prof. K.S.Mallesha Professor, Department of Physics, University of Mysore) appeared in the science journal ` Vijnana Karnataka ` (Volume Nos. 38—40, Page No. 97—102, (2012)) published by Prasaranga, University of Mysore	
5	An article `` Science needs Women... '' is published in the Commemorative volume (celebrating silver jubilee of the University) ` Visualisation of Women in Media, Literature and Science ` published jointly by Prasaranga and Women's Resource Center, Kuvempu University .	
6	Cultural Interests:	
6	Has been involved in Translation of articles, Short stories by the likes of Guy De Mopasa, Somerset Maugham, Franz Kafka etc., some of which are published in leading Kannada Magazines and Newspapers (`SUDHA', `KASTURI', `KANNADA PRABHA', `HOSATU')	
6	An article titled ` Dr. Shantinath Desai- A Staunch Votary of Modernism ' is published in the first issue of e-journal `ideas & ideologies' (ISSN No. 2320-7744; Vol. 1, Issue 1. March 2013) published by the Women's Resource Center, Kuvempu University.	

Working as referee for the journals

- (1) Quantum Information Processing (International)
- (2) Annals of Physics (International)
- (3) Pramana (National)

* * *

