

National Institute of Technology, Tiruchirappalli:

Performa for CV of Faculty/ Staff Members

Curriculum Vitae



Brief Profile:

Dr. R. Sankaranarayanan received his Ph.D. from Gujarat University in the year 2002. He worked as a postdoctoral fellow in Physical Research Laboratory, Ahmedabad and Weizmann Institute of Science, Israel till October 2003. He worked as a research associate and scientist in Bharathidasan University from November 2003 to April 2006. He joined NIT in April 2006.

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| 1. Name: | R. SANKARANARAYANAN |
| 2. Designation: | Assistant Professor |
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| Telephone : | |
| Extn (Optional): | |
| Mobile : 94426-27604 | |
| 5. Email (Primary): sankar@nitt.edu | Email (Secondary) : - |
| 6. Field(s) of Specialization: | Chaotic quantum systems, Quantum information |
| 7. Employment Profile | |

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology, Trichy	April 2006	-
Scientist	Bharathidasan University, Trichy	Sept. 2005	April 2006
Research Associate	Bharathidasan University, Trichy	Nov. 2003	Aug. 2005

8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	Gujarat University, Gujarat	2002	-	Chaotic Quantum Systems
PGDCA	St. Xavier College, Tirunelveli, Tamilnadu	1995	77% I Class	Computer Science
M.Sc. (Physics)	Manonmaniam Sundaranar University, Tamilnadu	1994	60.6% I Class	Physics

**National Institute of Technology, Tiruchirappalli:
Performa for CV of Faculty/ Staff Members**

B.Sc. (Physics)	Madurai Kamaraj University, Tamilnadu	1992	85% I Class	Major – Physics Minors – Mathematics, Chemistry
HSCC	Board of Higher Secondary Examination, Tamilnadu	1989	73.6%	Tamil, English, Physics, Chemistry, Biology and Mathematics
SSLC	Board of Secondary Education, Tamilnadu	1987	82.8%	Tamil, English, Mathematics, Science, History & Geography

9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/ Centre/Institution	From	To
Founder Staff Coordinator of M.Sc. (Physics) Programme – Curricula & Syllabi	Department	May 2007	Dec. 2015
Admission Coordinator – M.Sc. (Physics) Programme	Department	May 2007	July 2016
I B.Tech. Subject Coordinator	Department	April 2006	May 2009
Hostel Warden	Institution	Dec. 2010	Nov. 2015

10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To
External Examiner	Bharathidasan University, Trichy	Jan 2015	-
External Examiner	Pondicherry University, Pondicherry	Jan 2015	-

11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization

National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)
2002	Post doctoral fellowship	Physical Research Laboratory, Ahmedabad	January 2002	September 2002
2002	Post doctoral fellowship	Weizmann Institute of Science, Israel	October 2002	October 2003

13. Details of Academic Work

(i) Curriculum Development

Founder Staff coordinator of M.Sc. (Physics) Programme

(ii) Courses taught at Postgraduate and Undergraduate levels

Undergraduate: Physics - I and Physics – II for I B.Tech.

Postgraduate: Mathematical Physics, Electromagnetic Theory, Statistical Mechanics, Numerical and Computational Methods

(iii) Projects guided at Postgraduate level

M.Sc. (Physics) – 16, M.Tech. (NDT) – 13

(iv) Other contribution(s)

Prepared Physics Lab manual for I B.Tech. students

14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed

15. Number of PhDs guided

Name of the PhD Scholar	Title of PhD Thesis	Role (Supervisor/ Co-Supervisor)	Year of Award
S. Balakrishnan	Nonlocal characterization and applications of two-qubit gates	Supervisor	2012

National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue

17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
Short-term course on Waves and Oscillations in Science & Technology	Local	7 – 8 October, 2014	Coordinator	Department of Physics, National Institute of Technology, Tiruchirappalli
Workshop on Statistical Physics and Material Science (Sponsored by TEQIP – II)	National	21 – 23 July, 2016	Coordinator	Department of Physics, National Institute of Technology, Tiruchirappalli

18. Invited Talks delivered

Topic	Date	Inviting Organization
<i>Measurements</i> (in Tamil)	August 2006	National Institute of Technology, Tiruchirappalli
<i>Anomalous Diffusion in Hamiltonian Systems</i>	June 2007	Physical Research Laboratory, Ahmedabad
<i>Quantum Computation – A New Paradigm</i>	February 2009	Government Arts College, Tiruppur
<i>Characterization of two-qubit gates</i>	February 2012	Harish-Chandra Research Institute, Allahabad
<i>Thermodynamics</i>	December 2012	Academic Staff College, Bharathidasan University, Tiruchirappalli
<i>Free and forced oscillations including continuous systems</i>	December 2013	PSGR Krishnammal College for Women, Coimbatore
<i>Electromagnetic Waves</i>	November 2014	Academic Staff College, Bharathidasan

National Institute of Technology, Tiruchirappalli: Performa for CV of Faculty/ Staff Members

		University, Tiruchirappalli
<i>Physics through Oscillations</i>	October 2014	National Institute of Technology, Tiruchirappalli
<i>Maxwell and Polarization</i>	February 2016	UGC-Human Resource Development Centre, Bharathidasan University, Tiruchirappalli
<i>Thermodynamics and Partition Function</i>	July 2016	National Institute of Technology, Tiruchirappalli
<i>The Classroom Experience</i>	October 2016	M.D.T. Hindu College, Tirunelveli

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member)	Organization	Membership No. with date

20. Academic Foreign Visits

Country	Duration of Visit	Programme

21. Publications

(A) Refereed research Journals

1. *Chaos in a well: Effects of Competing length scales*, R. Sankaranarayanan, A. Lakshminarayan and V.B. Sheorey, Phys. Lett. A 279, 313 (2001). [arXiv:nlin/0005035]
2. *Quantum chaos of a particle in a square well: Competing length scales and dynamical localization*, R. Sankaranarayanan, A. Lakshminarayan and V.B. Sheorey, Phys. Rev. E 64, 046210 (2001). [arXiv:nlin/0106010]
3. *Recurrence of fidelity in nearly integrable systems*, R. Sankaranarayanan and A. Lakshminarayan, Phys. Rev. E 68, 036216 (2003). [arXiv:nlin/0307005]
4. *Level velocity statistics of hyperbolic chaos*, R. Sankaranarayanan, Phys. Lett. A 325, 57 (2004). [arXiv:nlin/0307001]

National Institute of Technology, Tiruchirappalli:
Performa for CV of Faculty/ Staff Members

5. *Accelerator modes of square well system*, R. Sankaranarayanan and V.B. Sheorey, Phys. Lett. A 338, 288 (2005). [arXiv:nlin/0212003]
6. *Dynamical echo in two-state quantum systems*, R. Sankaranarayanan, Jane H. Sheeba and M. Lakshmanan, Chaos, Solitons and Fractals 33, 1618 (2007). [arXiv:nlin/0506018]
7. *Entangling characterization of SWAP^{1/m} and controlled unitary gates*, S. Balakrishnan and R. Sankaranarayanan, Phys. Rev. A 78, 052305 (2008). [arXiv:0808.1649]
8. *Characterizing the geometrical edges of nonlocal two-qubit gates*, S. Balakrishnan and R. Sankaranarayanan, Phys. Rev. A 79, 052339 (2009). [arXiv:0902.4124]
9. *Entangling power and local invariants of two-qubit gates*, S. Balakrishnan and R. Sankaranarayanan, Phys. Rev. A 82, 034301 (2010). [arXiv:1005.2467]
10. *Operator-Schmidt decomposition and the geometrical edges of two-qubit gates*, S. Balakrishnan and R. Sankaranarayanan, Quantum Inf. Process, 10, 449 (2011).
11. *Measures of operator entanglement of two-qubit gates*, S. Balakrishnan and R. Sankaranarayanan, Phys. Rev. A 83, 062320 (2011).
12. *Classical rules and quantum strategies in penny flip game*, S. Balakrishnan and R. Sankaranarayanan, Quantum Info. Process, 12, 1261 (2013)

(B) Conferences/Workshops/Symposia Proceedings

1. *Nodal domain distribution of rectangular drums*, U. Smilansky and R. Sankaranarayanan, Proceedings of National Conference on Nonlinear Systems and Dynamics (Feb. 24-26, 2005), Aligarh Muslim University, Aligarh. [arXiv:nlin/0503002]
2. *Schmidt strength of the geometrical edges of two-qubit gates*, S. Balakrishnan and R. Sankaranarayanan, 75 Years of Quantum Entanglement, (Jan. 6-10, 2011), S.N. Bose National Centre for Basic Sciences, Kolkata. AIP Conf. Proc. 1384, 120-124 (2011).
3. *Study on Isotropic Heisenberg Interaction for the Realization of SWAP^{±α} Gates*, S. Balakrishnan, R. Muthuganesan and R. Sankaranarayanan, 59th DAE-Solid State Physics Symposium (December 16-20, 2014), VIT University, Vellore, Tamilnadu. AIP Conf. Proc. 1665, 130050:1-3 (2015).

(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number