

Curriculum Vitae

1. Name and Designation: **Dr. M.S. Mani Rajan &** Assistant Professor (Sr. Gr)
2. Father's Name : S.V. Murugan
3. Address for correspondence: Department of Physics
Anna University
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6. Institution Anna University,
University College of Engineering
Pullangudi (Post)
Ramanathapuram 623513.
7. Date of Birth 16.05.1980
8. Gender Male
9. Academic Qualification: M.Sc., M. Phill., Ph.D.,

S.No	Degree	University/Institution	% of marks	Month & Year
1.	B.Sc (Physics)	Vivekananda College, Tiruvedakam, Madurai	69.38	2002
2.	M.Sc (Physics)	N.M.S.S.V.N College, Nagamalai, Madurai	78.80 With Distinction	2004
3.	M.Phil (Physics)	Bharathidasan University, Trichy	75.5	2008
4.	Ph.D (Physics) (Nonlinear Fiber Optics)	College of Engineering Guindy (CEG), Anna University Chennai	8.7 (CGPA)	2014

10. Ph.D thesis title & Research Supervisor Name, Institute/Organization/University

Thesis Title: OPTICAL SOLITON PROPAGATION IN SOME INHOMOGENEOUS
NONLINEAR OPTICAL FIBER SYSTEMS

Research Supervisor: Prof. Dr. A. Mahalingam, Department of Physics,
Anna University, CEG Campus, Chennai-25.

11. Research Expertise

- ✓ Computational Physics
- ✓ Optical Fiber for Sensing applications
- ✓ Optical Fiber based Biosensors
- ✓ Nonlinear Dynamics

12. Teaching Experience

S.No	Positions held	Name of the Institute	From	To	Pay Scale
1.	Assistant Professor (Sr. Gr)	Anna University, University College of Engineering, Ramanathapuram 623513	13.10.2017	Present	15600-39100 AGP:7000
2.	Assistant Professor	Anna University, University College of Engineering, Ramanathapuram 623513	16.12.2010	12.10.2017	15600-39100 AGP:6000
3.	Lecturer	Rajalakshmi Institute of Technology, Chennai	05.06.2008	12.05.2010	Consolidate
4.	Lecturer	KCG College of Technology, Chennai	19.06.2007	22.05.2008	Consolidate

13. Administration & Additional Responsibilities

- i. NSS Program Officer
- ii. Core-committee member (Appointed by Honorable Vice-Chancellor, Anna University, Chennai)
- iii. HoD (i/c) of Science and Humanities
- iv. Deputy Warden / Boys Hostel
- v. DC member for Research Scholars in various affiliated & Private Universities
- vi. Question Paper scrutiny member in Autonomous Engineering Colleges

14. Awards / Fellowships received

S. No	Name of Award	Awarding Agency	Year
1.	Project Fellow	DST-Raja Ramanna Fellowship	2005-2007
2.	AISTDF R&D Collaboration	DST SERB	2018-2020
3.	NAM S&T	Visiting Fellowship	2019-2020
4.	Research Excellence Award	Anna University	2023
5.	Listed in Top2% scientists	Stanford University	2021, 2022 & 2023
6.	Outstanding Reviewer	Elsevier Journals	
7.	Outstanding Reviewer	Springer Journals	

15. Publication of Books/Chapters

Sl. No.	Name of the Book / Chapter	Name of the Publisher & ISBN	Month & Year
1.	Engineering Physics	Cengage Publications, New Delhi ISBN: 978-93-86668-09-7	June 2018
2.	Photonic crystal fibers for various sensing applications	Elsevier ISBN: 978-0-12-824024-3	June 2022
3.	Graphene-Based D-Shaped Gold-Coated Photonic Crystal Fiber for Transformer Oil Moisture Sensing	Springer ISBN 978-3-031-28942-2	June 2023
4.	Foundations of Quantum Mechanics: An exploration of the Theoretical Physics	Alpha International Publication ISBN 978-93-95978-36-1	2023
5.	Switching characteristics of optical solitons through inelastic interactions	Institute Of Physics (IOP), UK ISBN 978-0-7503-5623-7	2024

16. Ph. D Scholars

Ph.D. Awarded: 05
Ph.D. Pursuing: 04
M.Phil. Awarded: 01

17. Research Projects Ongoing/Completed

	Title	Funding Agency	Amount Received	Period (in Years)	Status
1.	Investigations into novel optical and terahertz metamaterials for energy harvesting and bio-sensing applications	DST ASEAN	28 Lakhs	2018-2020	Completed
2.	Improvement of the sensitivity of slab waveguide and optical fiber sensors	NAM S&T Centre Senior Visiting Fellowship	5 Lakhs	2019-20	Completed

18. Abroad Visited for Research Collaboration

- i. South Africa
- ii. Italy
- iii. UAE
- iv. Malaysia
- v. Singapore

19. Publications in International Journals

1. L. Malkija, M.M. Latha, **M.S. Mani Rajan**, *Theoretical studies on a 2D quasi discrete Ferromagnetic spin system with NNN interactions*, Physica B 699 (2025) 416746.
2. V. Devika, **M. S. Mani Rajan**, S. Saravana Veni, and P. Chandra Sekar, *Illuminate and Detect: Advancing COVID-19 Diagnosis with Defect Mode-Enhanced Photonic Crystal Fiber Sensor and Molecular Docking for Structural Insights*, Sensing and Imaging 26(2025)5.
3. V. Devika, **M.S. Mani Rajan**, Y. K. Prajapati, *Enhancing Breast Cancer Biomarker Detection with a Portable Biosensor Utilizing Flower Core Photonic Crystal Fiber Architecture*, Plasmonics (2024).
4. V. Yesudasu, R. Srivastava and Y. K. Prajapati, Sarika Pal, **M.S. Mani Rajan**, *Surface-Plasmon and Titanate Material-Assisted Sensor Structure for Pseudomonas Bacteria Detection with Increased Sensitivity*, IEEE Transactions on Agri Food Electronics, 2 (2024) 347 – 354.
5. I. Inbavalli, **M.S. Mani Rajan**, T. Alagesan, *Exploration on modulation instability in PT - symmetric non-Kerr Bragg grating structures*, Modern Physics Letters B, (2024) 2450507.

6. Houria Triki, **M.S. Mani Rajan**, *Optical similaritons in a tapered graded-index non-Kerr waveguides with a weak nonlocality*, Chaos Soliton and Fractals 184 (2024) 114978.
7. S. Saravana Veni, **M.S. Mani Rajan**, Conrad Bertrand Tabi and Timoléon Crépin Kofané, *Numerical investigation on nonautonomous optical rogue waves and modulation instability analysis for a nonautonomous system*, Physica Scripta (IOP) 99 (2024) 025202.
8. T. Mathanaranjan, **M.S. Mani Rajan**, S. Saravana Veni and Yakup Yildirim, *Cnoidal waves and solitons to three-coupled nonlinear Schrödinger's equation with spatially-dependent coefficients*, Ukr. J. Phys. Opt., 25 (2024) 1003-1016.
9. A. S. Alqahtani, U. Arun Kumar, J. Ramakrishnan, P. Parthasarathy, A. Mubarakali, **M. S. Mani Rajan**, *Investigation of hybrid spectrum slicing-wavelength division multiplexing (SS-WDM) in transparent medium for mode division multiplexing applications*, Optical and Quantum Electronics 55 (2023) 243.
10. Anisha Chirumamilla, Fei Ding, Yuanqing Yang, **M.S. Mani Rajan**, Sergey I. Bozhevolnyi, D. S. Sutherland, Kjeld Pedersen, Manohar Chirumamilla, *Tungsten nanodisc-based spectrally-selective polarization-independent thermal emitters*, Solar Energy Materials & Solar Cells (Elsevier) 259 (2023) 112449
11. Saravana Veni, **M. S. Mani Rajan**, *Excitation of ring solitons and dromions in a non-isospectral nonlinear Schrödinger equation with tunable external potential*, Optical and Quantum Electronics (Springer) 55 (2023) 107.
12. **M. S. Mani Rajan**, S. Saravana Veni, Abdul-Majid Wazwaz, *Self-steepening nature and nonlinearity management of optical solitons with the influence of generalized external potentials*, Optical and Quantum Electronics (Springer) 55 (2023)703.
13. I. Inbavalli, **M.S. Mani Rajan**, T. Alagesan, *Spatiotemporal instabilities in PT -symmetric periodic structures with non-Kerr fiber Bragg gratings*, Optik (Elsevier), 286 (2023) 170980.
14. M. Shanthi, R. Seyezhai, N. Ayyanar, **M.S. Mani Rajan**, *Optical Characteristics of Liquid-Infiltrated Elliptical Core Photonic Crystal Fiber*, Plasmonics (Springer) 18 (2023)1103-1116.
15. S. Saravana Veni, S. Vijayalekshmi, R. Surekha, **M.S. Mani Rajan**, *Non-collisional dynamics of nonautonomous three solitons through tailoring of modulated coefficients and modulation instability gain spectra*, Optik - International Journal for Light and Electron Optics (Elsevier)279 (2023) 170737.

16. S. Guban, K. Subramanian, **M. S. Mani Rajan**, T. Alagesan, *Four soliton propagation in a generalized nonautonomous Hirota equation using Darboux transformation*, Optical and Quantum Electronics (Springer), 55 (2023) 354.
17. **M. S. Mani Rajan**, S. Saravana Veni, *Nonautonomous three soliton interactions in an inhomogeneous optical fiber: Application to soliton switching devices*, Optik (Elsevier) 272 (2023) 170317.
18. B. Sivatharani, K. Subramanian, **M. S. Mani Rajan** and T. Alagesan, *A Class of Nonlinear Wave Patterns for (2+1) Dimensional Coupled Integrable Maccari's System*, Physica Scripta (IOP), **98** (2023) 045220.
19. S. Saravana Veni, **M.S. Mani Rajan**, Ratbay Myrzakulov, *Comparative analysis between Modulation Instability in an erbium and non-erbium optical fiber with generalized external potentials*, Optik (Elsevier) 270 (2022) 169979.
20. H.I. Abdel-Gawad, M. Tantawy, **M.S. Mani Rajan**, *Similariton regularized waves solutions of the (1+2)-dimensional non-autonomous BBME in shallow water and stability*, Journal of Ocean Engineering and Science (Elsevier) 7 (2022) 321–326.
21. Rakhi Bhattacharya, **M. S. Mani Rajan**, A. Sharafali, N. Ayyanar, Hassan Pakarzadeh, *Experimental and theoretical study of polarization in commercially available photonic crystal fibers*, Optical and Quantum Electronics (Springer) 54 (2022) 733.
22. Sumaiya Akhtar Mitu, Lway Faisal Abdulrazak, Kawsar Ahmed, Youssef Trabelsi, Fahad Ahmed al Zahrani, **M. S. Mani Rajan**, *Numerical investigation of elliptical core few-mode fiber for next generation data transmission*, (Wiley) Int J Commun Syst. (2022).
23. **M.S. Mani Rajan**, S. Saravana Veni, *Impact of external potential and non-isospectral functions on optical solitons and modulation instability in a cubic quintic nonlinear media*, Chaos, Solitons and Fractals (Elsevier) 159 (2022) 112186.
24. S.B. Khalifa, S. Chebaane, V. Senthil Nayagam, Saravana Veni, **M.S. Mani Rajan**, *Periodic and nonperiodic amplifications of attosecond solitons in an inhomogeneous lossy optical fiber*, Optik (Elsevier) 252 (2022) 168498.
25. J. Thilakavathy, R. Amrutha, K. Subramanian, **M. S. Mani Rajan**, *Different wave patterns for (2 + 1) dimensional Maccari's equation*, Nonlinear Dynamics (Springer) 108 (2022) 445-456.
26. Veluchamy Devika, **M. S. Mani Rajan**, Mohit Sharma, *Diamond core PET-PCF for supercontinuum generation using meager power with very low birefringence*, Optical and Quantum Electronics (Springer) 54 (2022) 858.

27. **M.S. Mani Rajan**, Saravana Veni, *Modulational instability in a tapered erbium doped fiber with inhomogeneous broadening*, Optical and Quantum Electronics (Springer) 54 (2022)173.
28. D. Vigneswaran, A. Sharafali, Thien Khanh Tran, EP Mubashira Banu, **M.S. Mani Rajan**, *Temperature independent photonic crystal fiber for spectroscopic and soliton pulse applications*, Optik - International Journal for Light and Electron Optics (Elsevier) 271 (2022) 170155.
29. V. Devika, **M. S. Mani Rajan**, H. Thenmozhi, A. Sharaf, *Flower core photonic crystal fibres for supercontinuum generation with low birefringent structure for biomedical imaging*, J. Optics (Springer) 52 (2022) 539-547.
30. S. A. Mitu, Kawsar Ahmed, F. M. Bui, P. Nithya, F. A. Al-Zahrani, Md. Aslam Mollah, **M.S. Mani Rajan**, *Novel nested anti-resonant fiber based magnetic fluids sensor: Performance and bending effects inspection*, Journal of Magnetism & Magnetic Materials (Elsevier), 538 (2021) 168230.
31. S. Saravana Veni, **M.S. Mani Rajan**, *Attosecond soliton switching through the interactions of two and three solitons in an inhomogeneous fiber*, Chaos, Solitons & Fractals (**Elsevier**) 152 (2021) 111390.
32. **M.S. Mani Rajan**, *Boomerons in a three-coupled NLS system with inhomogeneous dispersion and nonlinearity*, Waves in Random and Complex Media (Taylor & Francis) In Press 2021.
33. D. Vigneswaran, **M.S. Mani Rajan**, Mehtab Singh, Jyoteesh Malhotra, *System Investigations of Few-Mode Erbium-Doped Fiber Amplifier (FM-EDFA) for Vortex Mode Amplifications*, Journal of Computational Electronics (Springer) 20 (2021) 1549-1559.
34. S. Saravana Veni, **M.S. Mani Rajan**, Angelin Vithya, *Controllable Phase shift of optical soliton through nonlinear tunneling in a dual mode optical fiber*, Optik (Elsevier), 242 (2021) 167094.
35. N. Ayyanar, K. V. Sreekanth, G. Thavasi Raja, and **M. S. Mani Rajan**, *Photonic Crystal Fiber-Based Reconfigurable Biosensor Using Phase Change Material*, IEEE Transactions on Nanobioscience, 20 (2021) 338.

36. D. Vigneswaran, **M. S. Mani Rajan**, N. Ayyanar, S.K.Patel, *Numerical Investigation of dual guided elliptical ring core few-mode fiber for space division multiplexing applications*, Optik (Elsevier) 228 (2021) 166111.
37. Sumaiya Akhtar Mitu, Kawsar Ahmed, Hassan Abdullah, Fahad Ahmed Al Zahran, Bikash Kumar Paul, Shobit K.Patel, **M. S. Mani Rajan**, *Exploring Optical Properties of Exposed-Core Based Photonic Crystal Fiber*, Journal of Computational Electronics (Springer) 20 (2021) 1260-1269.
38. Sumaiya Akhtar Mitu, Kawsar Ahmed, Fahad Ahmed Al Zahrani, Amit Grover, **M. S. Mani Rajan**, Mohammad Ali Moni, *Development and analysis of surface plasmon resonance based refractive index sensor for pregnancy testing*, Optics and Lasers in Engineering (Elsevier) 140 (2021).
39. D. Vigneswaran, **M. S. Mani Rajan**, Bipul Biswas, Amit Grover, Kawsar Ahmed, Bikash Kumar Paul, *Numerical investigation of spiral photonic crystal fiber (S-PCF) with supporting higher order OAM modes propagation for space division multiplexing applications*, Optical and Quantum Electronics (Springer) 53 (2021) 78.
40. M. Sharma, Soni Sharma, Anuj Vijay, D. Vigneswaran, **M. S. Mani Rajan**, *Ultra-short pulse for plasma induced THz generation using carbon nano tubes*, Optical and Quantum Electronics (Springer) 53 (2021) 63.
41. Mehtab Singh, J. Malhotra, **M. S. Mani Rajan**, D. Vigneswaran, H. Aly. Moustafa, *A Long-Haul 100 Gbps Hybrid PDM/CO-OFDM FSO Transmission System: Impact of Climate Conditions and Atmospheric Turbulence*, Alexandria Engineering Journal (Elsevier) 60 (2021) 785-794.
42. P. Mahalakshmi, S. Arun Prakash, **M. S. Mani Rajan**, *Design of germanium core with anisotropic metamaterial cladding optical fiber in mid-infrared range applications*, Optical and Quantum Electronics (Springer) 52 (2020) 298.
43. Sofyan A. Taya, Nael Doghmosh, Zaher M. Nassar, **M. S. Mani Rajan**, D. Vigneswaran, *Refractometric sensor based on slab waveguides of simultaneously negative permittivity and permeability materials*, Optical and Quantum Electronics (Springer) 52 (2020) 519.
44. K.V. Sreekanth, P. Mahalakshmi, S. Han, D. Vigneswaran, **M. S. Mani Rajan**, *A terahertz Brewster Switch based on Superconductor Hyperbolic Metamaterial*, Journal of Applied Physics (AIP) 128 (2020) 173106.

45. **M. S. Mani Rajan**, *Transition from bird to butterfly shaped nonautonomous soliton and soliton switching in erbium doped resonant fiber*, Physica Scripta (IOP) 95 (2020) 105203.
46. **M. S. Mani Rajan**, T.K. Nguyen, D. Vigneswaran, *Controllable soliton transmission structures in birefringence inhomogeneous non-Kerr Optical fiber*, Optik (Elsevier) 216 (2020) 164908.
47. D. Vigneswaran, **M. S. Mani Rajan**, Bipul Biswas, Kawsar Ahmed, *Exploring next generation of IOT devices compatible few mode assisting ring core elliptical cladding optical fiber*, Wireless Networks (Springer) 26 (2020) 3217–3225.
48. Aparna A. Nair, **M.S. Mani Rajan**, M. Jayaraju, V. Natarajan, *Impact of fourth order dispersion on modulational instabilities in asymmetrical three-core optical fiber*, Optik (Elsevier) 215 (2020) 164758.
49. Aparna A Nair, A. Bisharathu Beevi, K.Subramanian, **M. S. Mani Rajan**, *Influence of septic nonlinearity on modulation instability under normal and anomalous dispersion regime*, Optik (Elsevier) 204 (2020) 164114.
50. S. Vijayalekshmi, A. Mahalingam, A. Uthayakumar, **M.S. Mani Rajan**, *Oscillating soliton propagation in SPNLS equation with symmetric potentials*, Optik (Elsevier) 221 (2020) 165143.
51. N.R. Ramanujam, Shobhit K.Patel, N. Manohar Reddy, Sofyan A.Taya, D.Vigneswaran, **M.S. Mani Rajan**, *One-dimensional ring mirror-defect photonic crystal for detection of mycobacterium tuberculosis bacteria*, Optik (Elsevier) 219 (2020) 165097.
52. V. Devika and **M. S. Mani Rajan**, *Hexagonal PCF of honeycomb lattice with high birefringence and high nonlinearity*, International Journal of Modern Physics B (World Scientific), 34 (2020) 2050094.
53. Md. Anowar Kabir, Md. Mehedi Hassan, Kawsar Ahmed, **M.S. Mani Rajan**, Arafa H Aly, Md. Nadim Hossain, Bikash Kumar Paul, *Novel Spider Web Photonic Crystal Fiber for Robust Mode Transmission applications with Supporting Orbital Angular Momentum Transmission Property*, Optical and Quantum Electronics (Springer) 52(2020)331.
54. Mehtab Singh, Jyoteesh Malhotra, **M.S. Mani Rajan**, D. Vigneswaran, H. Aly. Moustafa, *Performance evaluation of 6.4 Tbps dual polarization quadrature phase shift keying Nyquist-WDM superchannel FSO transmission link: Impact of different weather conditions*, Alexandria Engineering Journal (Elsevier) 59 (2020) 977–986.

55. Angelin Vithya, **M.S. Mani Rajan**, *Impact of fifth order dispersion on soliton solution for higher order NLS equation with variable coefficients*, Journal of Ocean Engineering and Science (Elsevier) 5 (2020) 205–213.
56. K.V. Sreekanth, P. Mahalakshmi, S. Han, **M. S. Mani Rajan**, P. K. Choudhury, and R. Singh, *Brewster Mode-Enhanced Sensing with Hyperbolic Metamaterial*, Adv. Optical Mater (Wiley). 7, Issue 21, (2019), 1900680.
57. M. Suganthy, B. K. Paul, Kawsar Ahmed, Md. Ibadul Islam, Md. Asaduzzaman Jabin, Ali Newaz Bahar, **M.S. Mani Rajan**, *Analysis of optical sensitivity of analytes in aqua solutions*, Optik (Elsevier) 178 (2019) 970–977.
58. I. S. Amiri, S.A. Khairani Alwi, S. A. Raya, N. A. M. Zainuddin, N. S. Rohizat, **M.S. Mani Rajan** and R. Zakaria, *Graphene Oxide Effect on Improvement of Silver Surface Plasmon Resonance D-Shaped Optical Fiber Sensor*, J. Opt. Commun (DE GRUYTER) 44 (2023) 53-60.
59. H. Thenmozhi, M.S. Mani Rajan, Kawsar Ahmed, *D-shaped PCF sensor based on SPR for the detection of carcinogenic agents in food and cosmetics*, Optik - International Journal for Light and Electron Optics (Elsevier), 180 (2019) 264–270.
60. R. Udaiyakumar, Naim Ben Ali, Bhupeshwaran Mani, **M.S. Mani Rajan**, P. Yupapin, I. S. Amiri, *Analytical and numerical demonstration of phase characteristics on two solitons under the influence of third-order dispersion*, Optical and Quantum Electronics (Springer), 51 (2019) 163.
61. V. Revathy, C.S. Boopathi, K. Selvakumar, K. S. Joseph Wilson, Sofyan A Taya, Arafa H Aly, **M.S. Mani Rajan**, *Nonlinear polarization in metal nanocomposite system based photonic crystals*, Optik - International Journal for Light and Electron Optics (Elsevier) 176 (2019) 78–84.
62. D. Vigneswaran, **M. S. Mani Rajan**, Moustafa H. Aly, Ahmed Nabih Zaki Rashed, *Few-mode ring core fiber characteristics: temperature impact*, Photonic Network Communications (Springer) 37 (2019) 131–138.
63. Aparna A. Nair, C.S. Boopathi, M. Jayaraju, **M.S. Mani Rajan**, *Numerical investigation and analysis of flattened dispersion for supercontinuum generation at very low power using Hexagonal shaped Photonic crystal fiber (H-PCF)*, Optik (Elsevier) 179 (2019) 718–725.

64. Mohit Sharma, D. Vigneswaran, Julia S. Skibina, **M.S. Mani Rajan**, S. Konar, T. T. Hoang and Q. M. Ngo, *Giant Nonlinear AlGaAs-Doped Glass Photonic Crystal Fibers for Efficient Soliton Generation at Femtojoule Energy*, IEEE Photonics, 11 (2019) 7102411.
65. R. Kanmani, Kawsar Ahmed, Subrata Roy, Fahad Ahmed, Bikash Kumar Paul, **M.S. Mani Rajan**, *The performance of hosting and core materials for slotted core QPCF in terahertz spectrum*, Optik (Elsevier) 194 (2019) 163084.
66. N. Prathap, S. Arunprakash, **M.S. Mani Rajan**, M. Tantawy, *Optical solitons and their shaping in a monomode optical fiber with some inhomogeneous dispersion profiles*, Optik - International Journal for Light and Electron Optics (Elsevier), 192 (2019) 162906.
67. P.J.Raghuraman, S.Bhagya Shree, **M.S. Mani Rajan**, *Soliton control with inhomogeneous dispersion under the influence of tunable external harmonic potential*, Waves in Random and Complex Media (Taylor & Francis) 31 (2021) 474-485.
68. K. Srinivasan, Naim Ben Ali, Youssef Trabelsi, **M.S. Mani Rajan**, Mounir Kanzari, *Design of a modified single-negative metamaterial structure for sensing application*, Optik (Elsevier), 180 (2019) 924–931.
69. P. Mahalakshmi, P.K. Choudhury, **M.S. Mani Rajan**, Mohit Sharma, R. Maheswar, *On the dual core anisotropic metamaterial clad polarization splitter*, Optik (Elsevier) 185 (2019) 1295–1302.
70. N. Shanmuga Vadivu, Sameh S. Mahdi, Sofyan A. Taya, Anas A. Alkanoo, I. M. Qadoura, P. Mahalakshmi, **M.S. Mani Rajan**, *Transverse magnetic mode slab waveguide optical sensor in the presence of conducting interfaces*, Optik (Elsevier) 178 (2019) 1090–1096.
71. G. Karthikeyaraj, **M.S. Mani Rajan**, M. Tantawy, K. Subramanian, *Periodic oscillations and nonlinear tunneling of soliton for Hirota-MB equation in inhomogeneous fiber*, Optik (Elsevier) 181 (2019) 440–448.
72. I.S. Amiri, Md. Abdul Khalek, Sujana Chakma, Bikash Kumar Paul, Kawsar Ahmed, D.Vigneswaran, **M.S. Mani Rajan**, *Design of Ge₂₀Sb₁₅Se₆₅ embedded rectangular slotted quasi photonic crystal fiber for higher nonlinearity applications*, Optik (Elsevier) 184 (2019) 63–69.
73. S. Vijayalekshmi, A. Mahalingam, A. Uthayakumar, **M.S. Mani Rajan**, *Multi-soliton propagation in generalized inhomogeneous NLS equation with symmetric potentials*, Optik (Elsevier) 181 (2019) 948–955.

74. S. Maheswaran, Bikash Kumar Paul, Md. Abdul Khalek, Sujan Chakma, Kawsar Ahmed, **M.S. Mani Rajan**, *Design of tellurite glass based quasi photonic crystal fiber with high nonlinearity*, Optik (Elsevier) 181 (2019) 185–190.
75. V. Arthi, Iraj S. Amiri, M.M. Ariannejad, P. Yupapin, S. Praveen Chakkravarthy, **M.S. Mani Rajan**, *Panda resonator structure to generate four-wave mixing by nonlinear effect*, Optik (Elsevier) 180 (2019) 900–905.
76. F. S. Chaves, H. V. Posada, D. Vigneswaran, **M.S. Mani Rajan**, *Transmittance spectrum in a 1D photonic crystal composed fused silica and sea water*, Optik (Elsevier) 185 (2019) 930–935.
77. R. Udaiyakumar, P. Vijayakumari, **M.S. Mani Rajan**, Bhupeshwaran Mani, *Combined influence of third order dispersion (TOD) and intra-pulse Raman scattering (IRS) on initially phase imparted solitons*, Optik (Elsevier) 164 (2018) 45–53.
78. Angelin Vithya, **M. S. Mani Rajan**, *Attosecond soliton shaping through dispersion tailoring technique in a monomode optical fiber*, Optik (Elsevier) 167 (2018) 196–203.
79. G. Karthikeyaraj, R. Udaiyakumar, **M.S. Mani Rajan**, *Preventable interaction of attosecond soliton in an inhomogeneous lossy fiber: Application to dispersion and nonlinearity management*, Optik (Elsevier) 158 (2018) 753–761.
80. N. Prathap, S. Arunprakash, **M.S. Mani Rajan**, K. Subramanian, *Multiple dromion excitations in sixth order NLS equation with variable coefficients*, Optik (Elsevier) 158 (2018) 1179–1185.
81. D. Vigneswaran, N. Ayyanar, Mohit Sharma, M. Sumathi, **M.S. Mani Rajan**, K. Porsezian, *Salinity sensor using photonic crystal fiber*, Sensors and Actuators A (Elsevier) 269 (2018) 22–28.
82. Angelin Vithya, **M. S. Mani Rajan**, S. Arun Prakash, *Combined effects of frequency and higher-order effects on soliton conversion in an erbium fiber with inhomogeneous broadening*, Nonlinear Dynamics (Springer) 91 (2018) 687–696.
83. **M.S. Mani Rajan**, B.V. Bhuvaneshwari, *Controllable soliton interaction in three mode nonlinear optical fiber*, Optik (Elsevier) 175 (2018) 39–48.
84. S. Vijayalekshmi, A. Mahalingam, **M.S. Mani Rajan**, *Symbolic computation on tunable nonautonomous solitons in inhomogeneous NLS system with generalized external potential*, Optik (Elsevier), 145 (2017) 240–249.

85. H. Thenmozhi, **M.S. Mani Rajan**, V. Devika, D. Vigneswaran, N. Ayyanar, *D-glucose sensor using photonic crystal fiber*, Optik (Elsevier) 145 (2017) 489–494.
86. P. Mahalakshmi, S. Venkatesh, M. Sumathi, R. Yamunadevi, N. Ayyanar, **M. S. Mani Rajan**, *Manipulating high birefringence in elliptical core meta fiber by varying metal/dielectric concentration of the framed AMM*, Optical and Quantum Electronics (Springer), 49 (2017) 202.
87. D. Vigneswaran, N. Ayyanar, M. Sumathi, **M. S. Mani Rajan**, *Tunable differential modal gain in FM-EDFA system using dual pumping scheme at 100Gbps system capacity*, Photonic Network Communication (Springer) 34 (2017) 451-460.
88. N. Ayyanar, D. Vigneswaran, Mohit Sharma, M. Sumathi, **M.S. Mani Rajan**, S. Konar, *Hydrostatic Pressure Sensor Using High Birefringence Photonic Crystal Fibers*, IEEE Sensors, 17 (2017) 650.
89. K. Subramanian, T. Alagesan, A. Mahalingam, **M. S. Mani Rajan**, *Propagation properties of optical soliton in an erbium-doped tapered parabolic index nonlinear fiber: soliton control*, Nonlinear Dynamics (Springer) 87 (2017) 1575.
90. **M. S. Mani Rajan**, *Unexpected Behavior on Nonlinear Tunneling of Chirped Ultrashort Soliton Pulse in Non-Kerr Media with Raman Effect*, Zeitschrift für Naturforschung A, 71 (2016) 751.
91. **M. S. Mani Rajan**, *Dynamics of optical soliton in a tapered erbium-doped fiber under periodic distributed amplification system*, Nonlinear Dynamics (Springer) 85 (2016) 599.
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94. **M.S. Mani Rajan**, A. Mahalingam, *Nonautonomous solitons in modified inhomogeneous Hirota equation: soliton control and soliton interaction*, Nonlinear Dynamics (Springer) 79 (2015) 2469.
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98. **M.S. Mani Rajan**, A. Mahalingam, A. Uthayakumar, *Nonlinear tunneling of optical soliton in 3 coupled NLS equation with symbolic computation*, Annals of Physics (Elsevier), 346 (2014) 1.
99. Shally Loomba, **M.S. Mani Rajan**, Rama Gupta, Harleen Kaur, C.N. Kumar, *Nonlinear tunneling of optical similaritons in a tapered graded-index*, Optics Communications (Elsevier), 324 (2014) 286.
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101. Shally Loomba, Rama Gupta, Harleen Kaur, **M.S. Mani Rajan**, *Self-similar rogue waves in an inhomogeneous generalized nonlinear Schrödinger equation*, Physics Letters A (Elsevier), 378 (2014) 2137.
102. **M.S. Mani Rajan**, A. Mahalingam, *Multi-soliton Propagation in a Generalized Inhomogeneous Nonlinear Schrödinger-Maxwell-Bloch system with Loss/gain Driven by an External Potential*, Journal of Math. Physics (AIP), 54 (2013) 043514.
103. **M.S. Mani Rajan**, A. Mahalingam, A. Uthayakumar, K. Porsezian, *Observation of two soliton propagation in an Erbium doped fiber system with distributed coefficients*, Communication in Nonlinear Science and Numerical Simulation (Elsevier), 18 (2013) 1410.
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105. **M.S. Mani Rajan**, A. Mahalingam, A. Uthayakumar, *Nonlinear tunneling of nonautonomous optical solitons in combined nonlinear Schrödinger and Maxwell-Bloch systems*, J. Optics (IOP), 14 (2012) 105204.

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20. INTERNATIONAL CONFERENCE

	PAPER TITLE	CONFERENCE TITLE	ORAL or POSTER
1	Interaction of optical solitons in an Inhomogeneous erbium doped fiber system	International Conference on Optics and Photonics (ICOP 2009 Oct30-Nov 1) (CSIR), Chandigarh.	Poster
2	Interaction of optical solitons in an inhomogeneous erbium doped fiber system	International conference on Innovative computing Technology (ICICT 2009) Sri Sairam Engg College Tambaram, Chennai	Oral
3	Optical soliton propagation in an inhomogeneous Maxwell-Bloch system	Indian Institute of Technology (IIT) Guwahati, India	Poster
4	Bright soliton propagation in inhomogeneous N-coupled nonlinear Schrödinger system using Darboux-transformation	SPIE, JAN 21-26,2012 San Francisco, California United States.	Accepted
5	Quantum Tunneling Effects on Optical Soliton Switching in an Erbium Doped Fiber	Photonics 2012 Dec 9-12, 2012 IIT madras	Oral
6	Cascade compression of Soliton through tunneling effect in birefringent fiber	International conference on photonics 2013 UAE, Dubai Jan 30-31, 2013	Poster
7	Soliton interaction in WDM system	Malaysia Dec 3 & 4, 2015	Oral & Session chair
8	Design of temperature sensor using liquid filled photonic crystal fiber	IEEE-CRALT Bangalore	Oral
9	Design of Elliptical Ring Core Fiber with Support of Four LP Modes in SDM Applications	CUSAT, APW Feb 2016	Oral
10	Design Of Twisted Dual Core Photonic Crystal Fiber for	NCNSD Kolkata	Oral

	Sensing Application	Dec 16-18,2016	
11	Soliton Management in an Erbium Doped Tapered Nonlinear Fiber	NCNSD Kolkata Dec 16-18,2016	Oral
12	D glucose sensor using Photonic Crystal Fiber	NLS 26 BARC Mumbai, Dec 2017	Poster
13	ICNDA 2022: International Conference on Nonlinear Dynamics and Applications	Sikkim Manipal Institute of Technology (SMIT), Majitar, Sikkim 737136 March 9-11, 2022 (Physical Mode)	Oral
14	International Conference on Advances in Optics & Photonics Instrumentation	CSIR-CSIO, Chandigarh October 23-25, 2024 (Physical Mode)	Oral

21. NATIONAL CONFERENCE

1	PAPER TITLE	CONFERENCE TITLE	ORAL or POSTER
	Dispersion Management Soliton Propagation in An Inhomogeneous Fiber	Physical Research Laboratory (PRL), Ahmedabad, GUJARAT	Poster
2	Effect Of Third Order Dispersion on Soliton Propagation in An Inhomogeneous Optical Fibers	NCDC 2012 RMK College Chennai April 21 ,2012	Oral
3	Nonlinear tunneling of NLS-MB equation with variable coefficients	NCNSD 2012 July 12-15 @ IISER, Pune	Poster
4	Compression of optical soliton through tunneling in birefringent fiber with higher order effects	8 th conference on nonlinear systems and dynamics IIT Indore Dec 11-14, 2013	Poster
5.	Solitary Waves in a Generalized Inhomogeneous NLS Equation with Symmetric Potentials	IISER Mohali March 13-15	Contributed Talk

22. WINTER SCHOOL / SUMMER SCHOOL/ TRAINING PROGRAM/ WORKSHOP

	TITLE	PLACE	DURATION
1.	Nonlinear dynamics	Indian Association for cultivation of sciences (IACS), Kolkata.	ONE MONTH

2.	Summer Training Program in Physics (STPIP-2003)	Dept of Nuclear Physics, Madras University, Guindy, Chennai.	ONE MONTH
3.	Modeling Photonic Devices	SSN College of Engineering Chennai	30-31, March 2015
4.	COMSOL Multiphysics (Hands on Training)	COMSOL Multiphysics Pvt Ltd, Pune (Maharashtra)	29-30, October 2015
5.	Nuclear Power – An Economical source of energy	Mepco Schlenk Engineering College, Sivakasi & Kudankulam Nuclear Power Project	19.8. 2016
6.	UGC Sponsored Orientation Programme	Human Resource Development Centre, Madurai Kamaraj University, Madurai	Feb 05 to Feb 25 2020
7.	Industrial Training for Faculty Communication and Networking Technologies	RGMTTC, BSNL, Chennai	May 26 to June 13, 2020
8.	Terahertz Band: Next Frontier for Wireless Communication	IFET College of Engineering Villupuram (Online Mode)	July 20 to July 25, 2020
9.	Metamaterial & Its Applications	IEEE Delhi section (Online)	July 27 to July 31, 2020
10.	3-week summer School on Optics & Photonics: Fundamentals and Applications	Indian Institute of Technology (IIT), New Delhi (Online)	June 6 to 24, 2022
11.	AICTE Sponsored FDP one-week short term course on Green energy Materials and Technology	Applied Science Department, National Institute of Technical Teachers Training and Research (NITTTR), Chandigarh (Online)	May 1-5, 2023
12.	FDP on Physics in Engineering & Technology	PSG institute of Technology and Applied Research, Coimbatore (Physical Mode)	Feb 12 – 16, 2024

23. SYMPOSIUM ATTENDED

	PAPER TITLE	TOPIC PLACE	DURATION
1	Propagation of Two Soliton in an Erbium Doped Inhomogeneous Lossy Fiber with Phase Modulation	Optics and Photonics (FOP2011) IIT Delhi	DEC 3-5,2011
2	Tunneling Effects on Optical Solitons in an Erbium Doped Fiber	Optics and Photonics (FOP2011) IIT Delhi	DEC 3-5,2011

3	Pulse compression of SIT solitons through nonlinear tunneling effects	DAE-BRNS-National Laser Symposium, Anna University, Chennai 600025	9-12, JAN,2012
4	Cascade compression of optical Soliton through tunneling in birefringent fiber	SV University, Tirupathi (AP)	Dec 3-6,2014
5	Multi soliton solutions in generalized nonautonomous nonlinear Schrödinger equation with an inhomogeneous external potential using Darboux transformation	SV University, Tirupathi (AP)	Dec 3-6,2014
6	DAE-BRNS-National Laser Symposium (NLS-26)	Bhabha Atomic Research Centre Mumbai (Maharashtra)	20-23, December, 2017
7	National Photonics Symposium (NPS -2018)	International School of Photonics CUSAT, Cochin, Kerala	Feb 27,28 & Mar 01 2018

24. MEMBER IN PROFESSIONAL BODIES

- Life member in Indian Laser Association (ILA)
- Life member in Materials Research Society of India (MRSI)
- Life member in Optical Society of India (OSI)
- Life member in Indian Physics Association (IPA)
- Life member in Photonics Society of India (PSI)

25. Research IDs

- (i) Google Scholar: <https://scholar.google.com/citations?user=CDVVS1kAAAAJ&hl=en>
- (ii) ORCID ID : 0000-0003- 0562-2469
- (iii) Researcher ID (WOS): N-2208-2016
- (iv) Scopus ID : 27967899500
- (v) Vidwan ID : 192678

26. Invited Talk

S. No	Date	Institution	Title of the talk
1.	29.01.2013	Vivekananda College, Tiruvedakam West, Madurai	Recent Trends in Optical Communication
2.	13.07.2017	Govt. of Tamilnadu, Department of School Education, (Rashtriya Madhyamik Shiksha Abhiyan – RMSA), In-service Training Program for Secondary Science Teachers, Venue: Mohamed Sathak Dasthagir B.Ed College, Collectorate, Ramanathapuram	Recent achievement in Science & Technology (Training for secondary Teachers)
3.	11.06.2018	7 days FDP on EC6702 Optical Communication & Networks, Dept of ECE, University College of Engineering, Ramanathapuram	Overview of Optical Fiber Communication
4.	13.08.2019	SRM Institute of Science & Technology, Ramapuram Chennai	Optical Fibers for sensing Applications
5.	19.01.2018	7 days FDP on PH8251 Material Science, Syed Ammal Engineering College, Ramanathapuram	Dielectric Materials
6.	23.01.2018	7 days FDP on PH8251 Material Science, Syed Ammal Engineering College, Ramanathapuram	Dielectric Applications
7.	31.01.2020	AICTE Sponsored FDP on Cost effective technologies for Zero Waste Management conducted by Mohamed Sathak Polytechnique College, Kilakarai	Optical Sensors for waste management
8.	29.07.2020	RMK College of Engineering & Technology (Online Mode)	Advanced fiber technology for various sensing applications
9.	22.09.2020	SRMIST Ramapuram Chennai (Online Mode)	Modern Communication Systems
10	06.02.2021	Pathyusha Engineering College Chennai (Online Mode)	Fiber Optics & Its application
11	29.05.2021	Pathyusha Engineering College Chennai (Online Mode)	Research Prospects in Optical Devices
12	05.07.2021	<i>International Online Faculty Development Program on Emerging Trends in Science and Technology by Easwari Engineering College, Ramapuram, Chennai – 89. (1.7.2021-6.7.2021)</i>	Fundamental of Nonlinear Fiber Optics
13	20.09.2021	<i>Two Week International Faculty Development Program on Advanced Computational and Experimental Research in Physics, SRM institute of Science and Technology, Ramapuram, Chennai 89. (13.9.2021-25.9.2021)</i>	Photonic Crystal Fiber for Bio-Sensing Applications
14	04.06.2022	Guest Lecture (Physical Mode), Pathyusha Engineering College Chennai	Optical Communication & Devices
15	20.06.2022	<i>One week online National level Faculty Development Program on Advanced Computational and Experimental Research in Physics, SRM institute of Science and Technology, Ramapuram, Chennai 89</i>	Role of computation in Nonlinear Dynamics

16	02.11.2022	<i>one day State Level Seminar on “Recent Trends in Photonics Sensors” conducted by G. Venkatasamy Naidu College (Autonomous), Kovilpatti 628502</i>	Applications on Photonic Sensors
17	24.02.2023	<i>One Day Seminar Organized By Hajee Karutha Rowther Howdia College, Uthamapalayam</i>	Frontiers in Fiber Optical Communication
18	28.02.2023	<i>Science day Celebration Conducted by Syed Ammal Arts & Science College Ramanathapuram</i>	Job and Research opportunities for Physics Students
18	16.10.2023	<i>National Seminar on Recent advances in Materials science and Technology Conducted by Syed Ammal Arts & Science College Ramanathapuram</i>	Optical Communication and Devices
19	21.03.2024	<i>Invited Talk @ Agurchand Manmull Jain College, Meenambakkam, Chennai – 114.</i>	optical fibers and solitons
20	22.03.2024	<i>Invited Talk @ ARM College of Engineering & Technology, Maraimalai Nagar, Chennai 603209.</i>	Role of Optical Fiber in various Engineering Applications
21	26.04.2024	<i>International Conference on Advanced Materials Computational Physics (ICAMCP-2024) Sponsored By DST SERB & Conducted By Saveetha Institute Medical and Technical Sciences, Chennai</i>	Revolution of Photonic Materials on Biosensors

27. Reviewer in Reputed International Journals & Editor for Special Issues

	Publisher	Name of the Journal
1.	IEEE	IEEE Access IEEE Sensors
2.	Elsevier	Optics Communication Chaos Soliton Fractals Physics Letters A Optik Results in Physics Results in Optics Physica D: Nonlinear Phenomena

		Measurement Optics and Lasers in Engineering Communications in Nonlinear Science and Numerical Simulation Optics and Laser Technology Optical Fiber Technology Optical Materials Sensors and Actuators A: Physical
3.	Springer	Nonlinear Dynamics Optical and Quantum Electronics The European Physical Journal Plus Indian Journal of Physics International Journal of Theoretical Physics
4.	OPTICA - formerly Optical Society of America (OSA)	Optics Continuum
5.	Institute of Physics (IoP)	Physica Scripta Journal of Optics (UK) European Physical Letters (EPL)
6.	Taylor & Francis	Journal of Modern Optics Waves in Random and Complex Media International Journal of Computer Mathematics
7.	World Scientific	Journal of Nonlinear Optical Physics & Materials Modern Physics Letters B
8.	MDPI	Sensors Photonics Mathematics Materials

DECLARATION

I declare that the information and facts furnished above are true and correct to the best of my knowledge and belief.

Place: Rameswaram

(Dr. M.S. Mani Rajan)

Date: 18.02.2025