

Detailed CV



Name : Dr. Y. Sangappa
Educational Qualification : M. Sc., M. Phil., Ph.D., NET, Sir C V Raman Post-Doc Fellow (USA)
Designation : Professor
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Mangalore University
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Research Areas :
Polymers, Biomaterials
Natural and Synthetic Fibers
Radiation Effects on Polymers
Nano-composites
Green Synthesis of Noble Metallic Nanoparticles
Antibacterial and Anticancer Properties
Polymer Blends
Macromolecules
WAXS
Nano-fibers
Biosensors

Bio-nanocomposite
Micro-particles
Nano-porous Materials
Adsorption Study

Professional Teaching Experience: UG-3.5 Years
PG-18 Years

Research Guidance (M.Phil. /Ph.D.):

Completed students' list

1. B Lakshmeesha Rao
2. Shivananda C S
3. Madhukumar R
4. Thejas Urs G
5. Mahadev Gowda
6. Rajesha Shetty G
7. Latha S

Ongoing Registered Students' list

1. Harish K V
2. Parushuram N
3. Ranjana R
4. Shilpa M
5. Harish Kumar D C
6. Lavita J Martis
7. Krishna K
8. Suma S B

Co-guiding: 1. Harisha K S
2. Basappa H

Research Projects Completed /Ongoing

1. Effects of 8 MeV EB irradiation on the physical and mechanical Properties of commercial silk fibers, *Principal Investigator* : Dr. Sangappa
2. Radiation Processing of Non-mulberry Silk Fibers, *Principal Investigator*: Dr. Sangappa

3. Physical, Mechanical and Thermal properties of Indian Hemp (Cannbis Sativa L.) Fibers (Young Scientist – Scheme), *Principal Investigator* : Dr. Sangappa
4. Degradation of Silk Fibroin by UV-Irradiation Study, *Principal Investigator* : Dr. Sangappa
5. Preparation and Characterization of *Bombyx mori* Silk Fibroin Films, *Principal Investigator* : Dr. Sangappa
6. Synthesis of Gold Nanoparticles Using Silk Fibroin as Biotemplate – Characterization and Sensor Applications, *Principal Investigator* : Prof. Sangappa

Professional Collaboration (if applicable) International / National

International:

1. School of Materials Science and Engineering, Georgia Institute of Technology, USA.
2. Institute for Materials Discovery, University College London, United Kingdom.
3. Department of Physics, Ibb University, Yemen.

National:

1. Department of Studies in Physics, University of Mysore
2. Department of Textile Technology, Anna University, Chennai.
3. Department of Physics, Shivaji University, Kolhapur

Research Journal Publications

International

1. Structure property relation in varieties of acid dye processed silk fibers Somashekarappa H, Annadurai, Sangappa, Subramanya and Somashekar R, Materials Letters, Vol.53, 415- 420, doi:10.1016/S0167-577X (01)00517-1, 2002.
2. Studies on drying of multi-voltine cocoons (IV) influence of stifling of cocoons on structural characteristics of Indian multi-biovoltine raw silk, Hariraj G, Annadurai V, Sangappa and Somashekar R, Journal of Silk Science and Technology, Japan, Vol. 11, 13-19, 2002.

3. Strain-tensor components crystallite shape and their effects on crystalline structure in Silk – I, Sangappa, Kenji Okuyama and Somashekar R Journal of Applied Polymer Science, Vol.89, 3045-3053, DOI: 10.1002/app.13521, 2004.
4. Rate of recovery of long periodicity in stretched muscal specimen using SAXS data Annadurai, Sangappa and Somashekar R, Journal of Polymer Materials, Vol. 21, 439-444, 2004.
5. Analysis of diffraction line profile from silk fibers using various distribution functions, Sangappa, Mahesh S S, Subramanya and Somashekar R, Journal of Polymer Research, Vol. 12, 465-472, DOI: 10.1007/s10965-005-4045-x, 2005.
6. Crystal structure of raw pure Mysore silk fiber based on (Ala-Gly) 2-Ser-Gly peptide sequence using LALS method, Sangappa, Mahesh S S and Somashekar R, Journal of Bioscience, Vol. 30(2), 259-268, 2005.
7. Variation of crystallite shape ellipsoid in non-mulberry silk fibers, Somashekarappa H, Sangappa and Somashekar R, Indian Journal of Fiber and Textile Research Vol. 30, 309-314, 2005.
8. Role of crystallite size and shape in thermal stability Twaron fibers Anjan Jain, Abhishek S, Sangappa, Mahesh S S and Somashekar R, Journal of Applied Polymer Science, Vol.100, 4910-4916, DOI: 10.1002/app.23557, 2006.
9. Crystallite size and shape in electron irradiated poly (vinylidene trifluoroethylene) copolymers using WAXS, Sangappa, Manjunath A and Somashekar R, The Bulletin on Physical Sciences, Vol. III, 23-31, ISSN 0973-8150, 2007.
10. Microstructural parameters in Electron irradiated HPMC films using X-ray line profile analysis, Sangappa, T Demappa, Mahadevaiah, Ganesh sanjeev, Divakar and R Somashekar, Journal of Applied Polymer Science, Vol. 109, Iss 6, 3983-3990, DOI: 10.1002/app.28495, 2008.
11. Physical and Thermal properties of 8 MeV EB irradiated HPMC polymer films, Sangappa, T Demappa, Mahadevaiah, Ganesh sanjeev, SDivakar and R Somashekar, Nuclear Instruments and Methods in Physics Research B, Vol. 226, 3975-3980, doi: 10.1016/j.nimb.2008.06.021, 2008.
12. Polymerization of Acrylonitrile initiated by Ce(IV)- Sucrose Redox System: A kinetic Study, Mahadevaiah, T Demappa, Sangappa and Bibi Ahamadi Katoon

Journal of Applied Polymer Science, Vol. 108, Issue 6, 3760-3768, DOI: 10.1002/app.27989, 2008.

13. Spectroscopic and thermal studies of 8 MeV electron beam irradiated HPMC films, Sangappa, T Demappa, S Asha, Ganesh sanjeev, P Parameshwara and R Somashekar, Nuclear Instruments and Methods in Physics Research B, Vol. 267, 2385-2389, doi: 10.1016/j.nimb.2009.04.007, 2009.
14. Microstructural Parameters in Microwave (MW) irradiated Indian Hemp fibers by wide angle X-ray scattering (WAXS) study, Sangappa, S Asha, Parameswar P, Manjunatha Pattabi and R Somashekar, Materials Science- An Indian Journal, Vol 6(1) pp 1-6, ISSN 0947-7486, 2010.
15. Microstructural Parameters in 8 MeV Electron-irradiated *Bombyx mori* Silk Fibers by Wide-Angle X-ray Scattering Studies (WAXS), Sangappa, S Asha, Ganesh Sanjeev, G Subramanya, P Parameswara, R Somashekar, American Institute of Physics Conf. Proc., January 5, 2010 – Volume 1202, pp.32-39, ISSN: 0094243X, 2010.
16. Microstructural Parameters in Electron-Irradiated C108 Silk Fibers by Wide-Angle X-ray Scattering Studies (WAXS), Sangappa, S Asha, Ganesh Sanjeev, G Subramanya, P Parameswara and R Somashekar, Journal of Applied Polymer Science, Vol.115, Iss. 4, 2183-2189, DOI: 10.1002/app.31312, 2010.
17. Physical and thermal properties of 8 MeV electron beam irradiated P31 *Bombyx mori* Silk fibers, Sangappa, S Asha, Ganesh Sanjeev and R Somashekar- Materials Science and Applications, Vol. 2, 826-832, doi:10.4236/msa.2011.27112, 2011.
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20. A Study on the Microstructural Parameters of 550 keV Electron Irradiated Lexan Polymer Films, K. Hareesh, Sangappa, R. Pramod, V. C. Petwal, Jishnu Dwivedi,

Ganesh Sanjeev, American Institute of Physics Conf. Proc., Vol. 1447 pp 586-587, 2012.

21. Quantification of degradation and surface morphology of NB7 silk fibers irradiated by 8 MeV electron beam using XRD and SEM techniques, Sangappa, S. Asha, Ganesh Sanjeev, P. Parameswara and R. Somashekar, Journal of Fibers and Polymers, Vol. 13 No. 2, pp 224-230, DOI 10.1007/s12221-012-0224-7, 2012.
22. Microstructural and Mechanical Properties of ZnO Nanoparticles Incorporated HPMC Films, B. Lakshmeesha Rao, Sangappa, S. Asha, Mahadeviah, R. Somashekar, International Journal of Science Research, Volume 01, Issue 04, pp 219-223, ISSN: 2277-7989, 2012.
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26. Effects of High Energy Electrons on the Physical and Mechanical Properties of Non-Mulberry Silk Fibers, Sangappa, S. Asha, S. Ganesh, R. Somashekar, Timmareddy, Submitted to Journal of Fibers and Polymers, Vol. 14, Iss. 6, pp 1032-1039, 2013.
27. Changes in the properties of Lexan polycarbonate by UV irradiation, K. Hareesh, A.K. Pandey, Sangappa, Ravishankar Bhat, A. Venkataraman, Ganesh Sanjeev, Nucl. Instr. and Meth. in Phys. Res. B., Vol. 295, pp. 61-68, 2013.
28. Proton and alpha particle induced changes in thermal and mechanical properties of Lexan polycarbonate, K. Hareesh, Pintu Sen, Ravishankar Bhat, Geeta G. Nair, Sangappa, Ganesh Sanjeev, Vacuum – Sur. Engg. Sur. Inter. And Vac. Tech., Vol. 91, Iss., pp. 1-6, 2013.

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 40. Effect of gamma irradiation on HPMC/ZnO nanocomposite films, Lakshmeesha B. Rao, Y. Sangappa, Radiation Effects and Defects in Solids, Vol. 172, Iss.06, 501-509, doi:10.1080/10420150.2015.1052432, ISSN: 1042-0150, 2015.
 41. Physical, thermal, chemical and mechanical properties of high energy electron irradiated non-mulberry Tassar silk fibers, Y. Sangappa, S. Asha, S. Ganesh, R. Somashekar, Journal of Fashion Tech and Textile Engg., Vol. 3, Iss.2, 1-4, doi: 10.4172/2329-9568.1000119, ISSN: 2329-9568, 2015.
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51. Influence of gamma irradiation on structural, thermal and antibacterial properties of HPMC/ZnO nanocomposites, B. Lakshmeesha Rao, R. Madhukumar, S. Latha, G. Rajesha Shetty, C. S. Shivananda, K. Sharath Chandra and Y. Sangappa, AIP Conf. Proc. 1731, 070014; <http://dx.doi.org/10.1063/1.4947846>, 2016.
52. Silk fibroin/pullulan blend films: Preparation and characterization, C. S. Shivananda, B. Lakshmeesha Rao, R. Madhukumar, B. K. Sarojini, R. Somashekhar, S. Asha and Y. Sangappa, AIP Conf. Proc. 1731, 070013 ; <http://dx.doi.org/10.1063/1.4947845>, 2016.

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65. Synthesis of Gold Nanoparticles using Silk Fibroin and Their Characterization, Mahadeva Gowda, Harisha K S, R. Ranjana, K V Harish, B. Narayana, K. Byrappa, and Y. Sangappa, AIP Conf. Proc. Vol. 1953, 030184-1-030184-4, doi.org/10.1063/1.5032519, 2018.
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61. Synthesis of Silver Nanoparticles Using Bombyx mori Silk Fibroin, **Y Sangappa** and Youjiang Wang, Octo 28-31, 2015, **Fiber Society Fall Conference**, NC State University, Raleigh – North Carolina, USA.

62. Gold Nanoparticles Synthesis and their Characterization, R. Ranjana, N. Parushuram, K. S. Harisha, B. Narayana, K. Byrappa, and **Y. Sangappa**, International Conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (**AFMEEB – 2017**), December 11-12, 2017, Madurai Kamaraj University, Madurai, Tamil Nadu, India.

63. Silk Fibroin/Hydroxypropyl Methyl Cellulose (HPMC) Blend Films: Preparation and Characterization, K. S. Harisha, M. Shilpa, N. Parushuram, T. Ranjana, G. Rajesh Shetty, S. Asha, B. Narayana, K. Byrappa and **Y. Sangappa**, International Conference on Advanced Functional Materials for Energy, Environment and Biomedical

Applications (**AFMEEB – 2017**), December 11-12, 2017, Madurai Kamaraj University, Madurai, Tamil Nadu, India.

64. Rapid Synthesis of Gold Nanoparticles Using Silk Fibroin: Characterization and Antibacterial Activity, N. Parushuram, R. Ranjana, K. S. Harisha, S. Asha, B. Narayana, K. Byrappa, and **Y. Sangappa**, International Conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (**AFMEEB – 2017**), December 11-12, 2017, Madurai Kamaraj University, Madurai, Tamil Nadu, India.

65. Biosynthesis and Characterization of Colloidal Silver Nanoparticles, M. Shilpa, S. Asha, K. S. Harish, B. Narayana, K. Byrappa, R. Neelakandan and **Y. Sangappa**, International Conference on Advanced Functional Materials for Energy, Environment and Biomedical Applications (**AFMEEB – 2017**), December 11-12, 2017, Madurai Kamaraj University, Madurai, Tamil Nadu, India.

66. Electron Irradiation Effects on Silk Fibroin Films, S. Asha, **Y. Sangappa** and S. Ganesh, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.

67. Role of ZnO Nanoparticles as UV and Microbial Shielding in Cellulose Food Packaging Materials, B. Lakshmeesha Rao, C. S. Shivanada, G. Rajesha Shetty, Mahadeva Gowda, and **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.

68. Structural, Thermal and Electrical Properties of Silk Fibroin – Silver Nanoparticles Composite Films, Shivananda C. S, Lakshmeesha Rao, G Rajesh Shetty B and **Sangappa Y**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.

69. Preparation and Characterization of Silk Fibroin – Poly Vinyl Alcohol (PVA) Blend Films, G. Rajesha Shetty, B. Lakshmeesha Rao, S. Asha, Mahadeva Gowda, C.S. Shivananda, **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.

70. Structural Mechanical and Antibacterial Properties of HPMC/SF-AuNPs Nanocomposite Films, K. V. Harish, B.Lakshmeesha Rao, S. Asha, C.Vipin and **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.
71. Rapid Synthesis of Gold Nanoparticles Using Silk Fibroin: Characterization and Anticancer Properties, N. Parushuram, R. Ranjana, K. S. Harisha, S. Asha, K. Byrappa, B. Narayana, L. N. Madhu, and **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.
72. Silver Nanoparticles using Bombyx Mori Silk Sericin and Their Characterization, M. Shilpa, K. S. Harisha, S. Asha, N. Parushuram, R. Ranjana, B. Narayana, K. Byrappa and **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.
73. Biogenic Synthesis of Silver Nanoparticles and Their Characterization, K. S. Harisha, M. Shilpa, S. Asha, N. Parushuram, R. Ranjana, B. Narayana, K. Byrappa and **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.
74. Photo-Driven Synthesis and Characterization of Gold Nanoparticles, R. Ranjana, S. Asha, N. Parushuram, K.S. Harisha, M. Shilpa, B. Narayana, K. Byrappa, **Y. Sangappa**, International Conference on Recent Advances in Materials Science and Biophysics (**RAMSB – 2018**), January 23-25, 2018, Mangalore University, Karnataka, India.
75. Synthesis of Silver Nanoparticles using Bombox mori Silk fibroin and antibacterial activity. K. S. Harisha, M. Shilpa, S. Asha, N. Parushuram, R. Ranjana, B. Narayana, K. Byrappa and **Y. Sangappa**, National conference, **AMN-2018**, on-15-17th March, IIIT, Noida, U.P.
76. Synthesis of Silver Nanoparticles using Silk Sericin and Their Characterization, M. Shilpa, K. S. Harisha, S. Asha, N. Parushuram, R. Ranjana, B. Narayana, K. Byrappa and **Y. Sangappa**, National conference, **AMN-2018**, on-15-17th March, IIIT, Noida, U.P.

77. Synthesis of Anisotropic Gold Nanoparticles using Silk Fibroin, R. Ranjana, S. Asha, N. Parushuram, K. S. Harisha, M. Shilpa, B. Narayana, K. Byrappa, and **Y. Sangappa**, National conference, **AMN-2018**, on-15-17th March, IIIT, Noida, U.P.

78. Bio-synthesis of Gold Nanoparticles and Their Characterization, N. Parushuram, S. Asha, R. Ranjana, K. S. Harisha, M. Shilpa, B. Narayana, K. Byrappa and **Y. Sangappa**. National Conference, **AMN-2018**, on-15-17th March, IIIT, Noida, U.P.

6. Invited / plenary talks delivered

Chaired the Session

1. Participated as Chairman of a Tech. Session in an International conference ICNP-2012 at M.G. University, Kottayam.
2. Session Chair: International Conference on Recent Advances in Materials Science and Biophysics, Mangalore University, 2018.
3. Session Chair: International Conference on Physics of Nanomaterials, Mangalore University, 2019.

Seminars/Conferences/Symposia/Workshops Organized As Member Of Organizing Committee:

- 1) Participated as member of organizing committee in one-day workshop on “Irradiation of Food for Quality upgradation”, 29-09-2003, Microtron Centre, Mangalore University.
- 2) Worked as organizing committee member of one-day National Workshop on “Neutron Production using Accelerator and Applications”, 27-03-2004, Microtron Centre Mangalore University, Mangalagangothri.
- 3) Worked as a member of organizing committee in two days workshop on “Career Guidance and Personality Development” for SC/ST Students, 8th to 9th Jan 2005, SC/ST Cell, Mangalore University Mangalagangothri.
- 4) Actively Participated for Organizing the Silver Jubilee Exhibition of Mangalore University in the Department of Physics during Jan 2005.

- 5) Participated as member of organizing committee in one-day discussion meeting and decennial celebration of Microtron Centre, 17th Feb. 2006, Mangalore University.
- 6) Participated as member of organizing committee in four days workshop on “Nuclear Data for Advanced Nuclear Systems (NWND-2006), November 08-11, 2006.
- 7) Worked as Treasurer for Functional Nanomaterials National Conference, FuNeh-2016, Mangalore University.

7. Impact of publications in terms of (Non-science faculty can leave out this item, if unable to fill up).

h-index	:	13
i10 index	:	18
Citation index	:	484

9. Awards / Fellowship / Recognition

Academic Achievements:

- Indo-US Raman Post-Doctoral Research Fellowship (2014-2015) – School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, Georgia – USA.
- DST and INSA Grants Award for research presentation in the International Conference on POLYCHAR18 - World Forum for Advanced Polymeric Materials -2010, Germany.
- Awarded “DST-SERC Fast Track Research Project entitled, “Physical, Mechanical and Thermal properties of Indian Hemp (Cannabis Sativa L) Fibers” under Young Scientists Scheme, Department of Science and Technology, Govt. of India, New Delhi.
- Invited as Evaluator for Science Experiments. Dist. Level Science Exhibition 2001, Mandya Dist. (Yuvaraja’s College).

- Invited as Judge and Chief Guest for Dist. Level, Science Experiments, Exhibition 2011, Kumata Uttar Kannada – DST-INSPIRE Programme.

Best Poster

Best Poster Award – National Seminar and Workshop on Functional Nanomaterial for Energy, Environment and Health – 2016, Mangalore University, Karnataka.

Best Poster and First Prize, KSTA National Seminar on Role of Science and Technology in Rural Development – 2018, Sri Gavisiddeshwar First Grade College, Koppal, Karnataka.

Best Poster Award – International Conference on Advances in Basic Sciences – 2019, Bahal, Haryana, India.

Best Poster Award – International Conference on Advances in Basic Sciences – 2019, Bahal, Haryana, India.

Membership of Professional Bodies

Indian Physics Association (IPA), Bhabha Atomic Research Center, Mumbai.

Indian Society for Radiation Physics (ISRP), Bhabha Atomic Research Center, Mumbai.

Indian Science Congress Association (ISCA), Kolkata.

Materials Research Society (MRS) – Singapore.

Asian Polymer Association IIT New Delhi.

Department of Studies in Physics Mangalore University.

11. Any other Information

- Ph D Thesis adjudicated: **08**

Reviewer for Journals

Reviewer for Materials Letters
Reviewer for Physics and Chemistry of Solids
Reviewer for Vacuum Journal
Reviewer for Ionics Springer Journal
Reviewer for Fibers and Polymers
Reviewer for Polymer Bulletin
Reviewer for Macromolecular Research
Reviewer for Materials Research Innovations
Reviewer for Radiation Effects and Defects in Solids
Reviewer for Metallic Organic Chemistry
Reviewer for Journal of Chemistry and Biotechnology
Reviewer for Materials Research Express
Nano-express
Reviewer for DAE-SSPS Proceedings

Administrative Committees

- Member – BOS PG in Physics, Mangalore University
- Member – BOS Master Course in Materials Science (PG), University of Mysore
- Member – BOAE in Physics, Mangalore University
- Member – BOAE in Physics, Kuvempu University
- Member – BOS, PG in Physics, Yuvarajas College, Univ. of Mysore
- Member – BOAE in Physics (PG), Yuvarajas College, Univ. of Mysore
- Member – M Sc Admission Committee - Physics
- Member – M Sc Admission Committee - Yogic Science
- Member – Ph D Admission Committee - Physics
- Member – PURSE Lab Implementation Group, Mangalore University
- Member – PMB, Central University of Karnataka, Kalaburagi

- Member – Academic Council, SDM College (Autonomous), Ujire, Dakshina Kannada
- Member – Academic Council, School of Social Work (Autonomous), Roshani Nilaya, Mangalore
- Member – BOA in Physics (Mangalore University Affiliated Colleges)
- Member – College Management Committee, S V S College Bantwal
- Member – College Management Committee, P A College Kairangal, Bantwal
- Member – College Management Committee, S D M Education College Ujire
- Member – Governing Board/Council Shri Dr. NSAM Nitte College, Karkal
- Member – Digital Valuation System, Mangalore University
- Member – Annual Report Committee, Mangalore University
- Member Convener – NEP 2020 – Examination Reforms Committee, MU
- Member Convener – Internal Enquiry Committee – 2020, MU
- Member – Remuneration – Exmn Related Committee, MU
- Member – UUCMS Implementation Committee
- Coordinator – Computerization of Exmn work, MU
- Member – Academic Council Member SDM College 2020-2021

Administrative Experience

- Deputy Registrar (Evaluation), Registrar Evaluation Office, Mangalore University 22-10-2013 to 31-12-2014 (1 Year 2 Months)
- Custodian – PG Central Valuation (Arts, Science and MSW) – Mangalore University (Odd Sem 2018, Even Sem 2019, Odd Sem 2019)
- BoE Chairman, B Sc, IDD, Mangalore University (2018, 2019, 2020)
- Local Inquiry Committee - Member
- AISHE – University Nodal Officer
- State Scholarship Portal – Coordinator
- Special Officer – Registrar Evaluation Office MU, 09-09-2020 to 18-11-2020
- Director, Centre for Distance Education, MU, 18-11-2020 till date

Foreign Visits:

S.No	Name of the Country	Place	Purpose and Date	Financial Assistance

1	Malaysia	Malaysian Nuclear Agency, Kuala Lumpur	ICNX – 2009 Int. Conf. 28 th June -1 st July 2009	Mangalore University
2	Germany	University of Siegen, Siegen	POLYCHAR18, Int. Conference 06 th – 10 th April 2010	DST/INSA Govt. of India
3	Singapore	Materials Research Society	ICMAT, Int. Conf. 30 th June – 5 th July 2013	Mangalore University
4	USA	Georgia Institute of Technology Atlanta - GA	Post-Doctoral Research Raman Post Doc Fellowship	UGC New Delhi