Dr. KAILASNATH M.

Dr. Kailasnath M. received his M.Tech. and PhD in Photonics from Cochin University of Science and Technology and a postdoctoral fellowship from the University of Texas, USA. He is currently a Professor at International School of Photonics, Dean of the Faculty of Technology, Member of the Senate and the Chairman, Board of Studies in Photonics, CUSAT. He was formerly, the Dean, Faculty of Engineering and Technology, Mahatma Gandhi University, Kottayam. With more than 22 years of experience in UG&PG teaching and research in Photonics, he has successfully supervised 11 PhD students, and published 77 Journal articles and 7 Book chapters. He has undertaken 10 individual research projects worth Rs. 2.51 crore. This includes funding from UGC-UKIERI, DST-FINLAND, DST SERB, ADA, KSCSTE, Erasmus Plus and Industry. A technology on plastic optical fiber fabrication has been transferred to STERLITE optical technologies, Aurangabad. An Indian Patent Application has been submitted in May 27, 2022 for the invention entitled "Portable Sensor for detection of fluoride in water. Currently, an industrial consultancy project related to 'laser beam shaping and optical design in flow cytometry' with Agappe Diagnostics, Kochi is progressing. 33 students from International School of Photonics at M.Sc, M.Tech and PhD levels benefited from the foreign research exposure provided by the 6 international MoUs/funding schemes initiated by him. These Universities include, University of Rennes, France, Tampere University of Technology, Finland, Robert Gordon University, Scotland, Dublin City University, Ireland, University of Gothenburg, Sweden, and Multimedia University, Malaysia. In the year 2020, for the first time in CUSAT, an International credit transfer was accomplished with University of Rennes/ ENSSAT for the M.Sc Photonics students. A new elective course on Optical Sensor Technology has been introduced and a new Course 'Industrial Photonics' is being developed in collaboration with French automobile multinational, Valeo. With the support of IEEE and KSCSTE, he actively engaged in '**Optics outreach program'** involving 12,000 schools in Kerala, where over a million students participated. Under '**Optics to School'** program, more than 100 Schools have been visited and Optics Experimental kits were donated to 50 rural schools.

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3. Date of Birth : 01-06-1973

4. Gender (M/F/T) : M

5. Academic Qualifications :

Sl.No.	Degree	Year	Subject	University/Institution
1	M.Sc	1996	Physics	Mahatma Gandhi University
2	M.Tech	1999	Optoelectronics & Laser Technology	Cochin University of Science and Technology
3	M.Phil	2001	Physics	University of Kerala
4	Ph.D	2011	Photonics	Cochin University of Science and Technology
5	Post Doctoral Fellowship	2013-14	Nano- Bio Photonics	University of Texas, USA

6. Positions in Academics

	Position	Institution	period
1	Professor	International School of Photonics, CUSAT	21-03-2001 Till date
2	Dean, Faculty of Technology,	Cochin University of Science and Technology	14-05-2022 Till date
3	Dean, Faculty of Engineering and Technology,	Mahatma Gandhi University, Kottayam	08-10-2020 to 07-10-2022
4	Chairman Board of Studies in Photonics	CUSAT	05-01- 2021 Till date
5	Member, General Council	The National University of Advanced Legal Studies (NUALS)	14-10 2019 Till date
6	Director	International School of Photonics, CUSAT	07-10-2014 to 27-05-2016
7	Director	International School of Photonics, CUSAT	07-06-2012 to 24-08-2013

7. Visiting Professor

1	University of Gothenburg, Sweden	Sept 24 to Oct 3, 2019
2	Robert Gordon University, UK.	24-30, June 2015
3	Tampere University of Technology, Finland	8-27, November 2012

8. **Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.**

Award	Agency	Year
Short Research Trip to France Fellowship	French Institute in India /Embassy of France	2023
Academy Excellence Award	DRDO	2023
Raman Post-Doctoral Fellowship	UGC	2013

9. Membership in Expert Committees

1	Cochin University of Science and Technology, Senate	Member
2	Board of Studies in Photonics, CUSAT	Chairman
3	Academic Council, CUSAT	Member
4	Board of Studies in Photonics, Manipal University Dept. of Molecular and Atomic Physics	Member
5	Board of Studies in Optoelectronics, University of Kerala	Member
6	IEEE Photonics Society, Kerala Chapter	Advisor
7	ERUDITE - Scholar In Residence Programme – A Scheme of the Kerala State Higher Education Council (KSHEC)	Co-Ordinator
8	The National University of Advanced Legal Studies (NUALS) General Council	Member
9	ERASMUS PLUS international mobility program Cochin University of Science and Technology	Co-Ordinator
10	Library Advisory Committee Cochin University of Science and Technology	Member
11	International Cooperation agreement on student mobility within the framework of a bilateral exchange programme. ENSSAT Engineering School, University Rennes 1, France	Co-Ordinator
12	SPIE - The International Society for Optics and Photonics, ISP-CUSAT Student Chapter International School of Photonics	Faculty advisor
13	UGC SC/ST Cell, Cochin University of Science and Technology	Member
14	KIIFB – Technical Committee, CUSAT	Member
15	Optical Society of India	Life Fellow

11. PhD. Supervision – Faculty of Technology, CUSAT

No.	Name of student	Title of the Thesis	Year of award
1	Manju Joseph	Bio-assisted morphological tuning of zinc oxide nanoparticles for photonic applications	2023
2	Arindam Sarkar	Investigations on silver nanostructure mediated micro lasing in certain cylindrical microresonators	2022
3	Ramya M	Solvent Controlled morphological engineering and growth kinetics of ZnO Nanostructures for Photonic applications.	2022
4	Nideep T.K.	Synthesis and Characterization of Water Soluble CdTe Quantum Dots for Photonic Applications	2022
5	Anand V.R.	Polymer optical fiber based active and passive whispering gallery mode resonator for microlasing and sensing applications	2021
6	Jessy Simon	Synthesis and optical characterization of certain metallic and bimetallic nanoparticles for biophotonic applications	2021
7	Roopa Venkataraj	Development of optical sensors for detection and measurement of fluoride using organic dyes and some of their derivatives	2020
8	Linslal C.L.	Investigations on dye doped polymer optical fibers for the development of efficient microlasers	2017
9	Jaison Peter	"Investigations on dye-doped PMMA based optical waveguides for photonic applications	2017
10	Anju K. Agustine	Thermo optic and Nonlinear optical studies on CdSe Quantum dots for photonic applications	2016
11	Suneetha Sebastian	Fabrication, optical analysis and photonic applications of certain metallic nanostructure integrated dye doped polymer optical fibres	2016

12. Technology Transfers / Industrial Consultancy

Name of Technology transfer	Agency	Year
Polymer optical fibre fabrication technology	STERLITE Optical Technologies Aurangabad	2009
Development of laser beam shaping and optics design in flow cytometry.	Agappe Diagnostics Limited, Andheri, Mumbai.	2022 (ongoing)

13. Patents

Indian Patent Application No. 202241030589 dated May 27, 2022 for the invention entitled "**Portable Sensor for detection of fluoride in water**" in the name of Cochin University of Science and Technology (CUSAT) Ref. No. 5604IN051.

14. Details of Projects under implementation

Sl. No	Title of the project	Period	Cost in Lakhs	Agency
1	Erasmus-Plus International mobility scheme with University of Gothenburg, Sweden	2022-25	~ 48 Lakhs	European Union
2	Erasmus-Plus International mobility scheme with Dublin City University, Ireland	2022-24	~ 22 Lakhs	European Union

15. Details of sponsored projects already implemented

Sl. No	Title of Project	Cost in Lakh	Duration	Agency
1	Photothermal and nonlinear optical characterization of rare earth doped nanoparticles for bioimaging applications	34.99 Lakhs	2019-22	DST SERB
2	Design and development of Au/Ag doped polymer optical fibre laser with enhanced photostability.	44.25 Lakhs	2018 -21	DST SERB
3	Science Popularization Programme 'Celebration of Year of Light'	2 Lakhs	2015-2016	KSCSTE

4	Erasmus Plus International mobility program with University of Gothenburg, Sweden*	~ 24 Lakhs	2015-2017	European Union
5	Development of optical fiber based devices for sensing applications*	21.84 Lakhs	2013-2015	UGC-UKIERI
6	Nanomaterials for multipolar nonlinear optics	27.26 Lakhs	2011-2014	DST (Indo-Finnish)
7	Establishment of new national MEMS design centre	17 Lakhs	2010-2013	ADA
8	Fabrication and characterisation of Polymer optical fibres	10 Lakhs	2006-2008	Sterlite Optical Technologies

* In charge of lab experiments, exchange visits and project review meetings.

16. International Collaborations as PI / Coordinator

Sl.No	Programme	Period	Funding Agency
1	MoU- International Cooperation agreement on student mobility within the framework of a bilateral exchange programme. with University of Rennes, France. Collaborator – Prof. Stephane Trebaol	26-02-20 till date	CHARPAK / ENSSAT, University of Rennes, France
2	MoU with Dublin City University, Ireland for faculty and student exchange 0 Dr. Sithara Pavithran	2021-2023	Erasmus Plus, European Union
3	MoU with Dept. of Physics, University of Gothenburg Sweden for student and faculty exchange. Collaborator- Prof. Dag Hanstorp	2022- 2025	Erasmus Plus, European Union
4	INDO – UK Joint Project Development of Fibre Optic Devices for Sensing Applications (DOFISA) with Robert Gordon University, Scotland. Collaborator. Prof. Radhakrishna Prabhu	2013-2016	UGC, UKIERI
5	MoU with Multimedia University, Malaysia for student exchange. Collaborator – Prof. Hairul Azhar Abdul Rashid	2014-17	Multimedia University, Malaysia
6	INDIA - FINLAND joint Project on Multipolar nonlinear Optics with Tampere University of Technology (TUT) Finland. Collaborator- Prof. Martti Kauranen	2013-2015	DST India, Academy of Finland

17. Coordinator - Conferences/Workshops

Sl.No.	Event	Sponsoring Agency
1	Photontech 2023 - A training program in Optics for Higher Secondary School teachers Feb 3, ISP, CUSAT	IEEE
2	Track Chair (Photonics) 2022 IEEE 19th India Council International Conference (INDICON). CUSAT, Nov. 24 - 26, 2022	IEEE
3	Annual Photonics Workshop, CUSAT, Feb 27-28, 2002	UGC
4	Annual Photonics Workshop, CUSAT, Feb 27-28, 2003	UGC
5	Annual Photonics Workshop, CUSAT, Feb 27-28, 2004	UGC
6	Annual Photonics Workshop, CUSAT, Feb 27-28, 2005	UGC
7	Annual Photonics Workshop, CUSAT, Feb 27-28, 2006	UGC
8	Annual Photonics Workshop, CUSAT, Feb 27-28, 2008	UGC
9	Annual Photonics Workshop, CUSAT, Feb 27-28, 2009	UGC
10	Annual Photonics Workshop, CUSAT, Feb 27-28, 2010	UGC
11	Annual Photonics Workshop, CUSAT, Feb 27-28, 2011	UGC
12	Annual Photonics Workshop, CUSAT, Feb 27-28, 2012	UGC

12. Publications - Book Chapters

1. Polymer Cylindrical microcavities for WGM sensing applications- M. Kailasnath, Anand V R., Encyclopedia of Materials: Electronics- **Elsevier**, 2022
2. Quantum Dots for Sensing applications. Nideep T.K, Ramya M., M.Kailasnath - Nanoscale matter and principles for sensing and labelling applications **Springer**, 2023
3. Curcumin: Nature's gold for Photonic applications - Roopa Venkataraj and M.Kaiasnath Encyclopedia of Materials: Electronics- **Elsevier**, 2023
4. ZnO - A key-functional material for nonlinear optical applications" M Ramya , Nideep T,K and M. Kailasnath, Encyclopedia of Materials: Electronics- **Academic Press**, 2023
5. Phosphors: A Promising Optical Material for Multifunctional Applications- Viji Vidyadharan, Kamal P. Mani, Cyriac Joseph, M. Kailasnath – Optical and Molecular Physics, **CRC Press**, ISBN 9781003150053, 2021
6. Optical nano-thermometry based on the luminescence of rare-earth ion-doped Phosphors- Kamal P Mani, Kailashnath Madanan, Cyriac Joseph and Sisira S Encyclopedia of Materials: Electronics- **Academic Press**, 2023
7. Proceedings of National Photonics Symposium- 2019 (Book Edited)

13. Journal Reviewer

1. ACS Applied Nanomaterials
2. Optics and Laser Technology
3. Optics Communications
4. Fiber and Integrated Optics
5. Journal of Optics
6. Optical materials
7. Applied Physics A
8. Journal of Physics D
9. ECS Journal of Solid State Science and Technology
10. Journal of Nonlinear Optical Physics & Materials
11. Journal of Molecular Liquids
12. Physica Scripta
13. Helion.
14. Inorganic Chemistry Communications
15. Evergreen
16. Inorganic and Nanometal Chemistry
17. Journal of Material Research and Technology

14. Membership in Professional Bodies/ Societies

IEEE – Senior Member
Photonics Society of India – Executive member
Optical Society of India – Life Fellow
Indian Association of Physics Teachers – Life Member

15. Journal Publications

77. Anugop, Manju Joseph, Vipin Balan, M. Kailasnath, Random laser on the surface of polymer optical fibre- A comparison of the effect of dielectric and plasmonic nanostructures, ***Ceramics International***, 49, 10, 2023
76. Anugop, B., V. R. Anand, and M. Kailasnath. "Amplification of whispering gallery microlaser emission using dye-doped graded-index polymer optical fiber." ***Optics Communications*** 530 (2023): 129135.
75. R. Thankachan, M. Joseph, B. Anugop and M. Kailasnath, "Tunable Random Lasers For Data Shuffling," 2022 ***IEEE Explore***, 19th India Council International Conference (INDICON), Kochi, India, 2022, 1-4, doi: 10.1109/INDICON56171.2022.10039971.
74. Peter, Anita Mary, M. Ramya, and M. Kailasnath. "Investigation of Intensity Dependent Nonlinear Absorption in Cerium Phosphate Nanorods." ***Journal of Physics***: Conference Series. Vol. 2357. No. 1. IOP Publishing, 2022.
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72. Thara Tom, Sithara P. Sreenilayam, Dermot Brabazon, Josmin P. Jose, Blessy Joseph, Kailasnath Madanan, Sabu Thomas, "Additive manufacturing in the biomedical field-recent research developments", ***Results in Engineering*** 16 (2022) 100661
71. M Joseph, VPN Nampoori, M Kailasnath."Biofunctionalized zinc oxide nanoflowers coated textiles for UV protection", ***Materials Today: Proceedings*** *68, 363–366* (2022).

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69. P Gitty, KP Mani, A Deepti, PS Baby Chakrapani, P Prabeesh,"Structural and optical properties of dysprosium-doped hydroxyapatite nanoparticles and the use as a bioimaging probe in human cells***"Luminescence"*** 37 (5), 758-765(2022).
68. Anugop Balachandran, Sithara P. Sreenilayam, Kailasnath Madanan, Sabu Thomas,Dermot Brabazon, " Nanoparticle production via laser ablation synthesis in solution method and printed electronic application - A brief review". ***Results in Engineering***, 16, 100646(2022).
67. B. Anugop, M. Kailasnath, "Effect of Au/Ag bimetallic nanoparticles in the lasingcharacteristics of dye doped microring embedded hollow polymer optical fiber". ***Materials Today: Proceedings***, 64,pp27-31(2022)
66. Arindam Sarkar, Roopa Venkataraj, Akshay Krishna Anugop B, VPN Nampoori, M.Kailasnath, "Silver nanowire mediated random lasing in silica cladded dye doped polymer microstructure", ***Optics Communications,*** 504, 127466, (2022).
65. Madanan Kailasnath, Vadakkedath Raveendran Anand,"Polymer Cylindrical Whispering Gallery Mode Microcavities for Sensing Applications, Elsevier,(2022).
64. Ramya, M., Nideep, T.K., Nampoori, V.P.N. and Kailasnath,M.,"Solvent assisted evolution and growth mechanism of zero to three dimensional ZnO nanostructures for dye sensitized solar cell applications". ***Nature Scientific reports***, *11*(1), pp.1-14 (2021).
63. Joseph, M., Venkataraj, R., Ramya, M., Mani, K. P., Nampoori, V. P. N., & Kailasnath, M. UV induced photocatalytic and antibacterial studies of zinc oxide nanoflowers prepared via casein assisted low-temperature method. ***Optik,*** 168034 (2021).
62. Sarkar, A., Venkataraj, R., Anugop, B., Nampoori, V. P. N., & Kailasnath, M. Silver nanowire mediated random lasing in silica cladded dye doped polymer microstructure. ***Optics Communications,*** 127466 (2021).
61. Ramya, M., Nideep, T. K., Nampoori, V. P. N., & Kailasnath, M. Shape dependent heat transfer and nonlinear optical limiting characteristics of water stable ZnO nanofluid. ***Surfaces and Interfaces, 26***, 101345 (2021)
60. Sarkar, A., Venkataraj, R., Nampoori, V.P.N. and Kailasnath, M., Silver nanoparticle assisted enhanced WGM lasing by silica microresonator. ***Optics Communications***, *494*, p.127045 (2021).
59. Simon, J., Nampoori, V.P.N. and Kailasnath, M., Concentration dependent thermo-optical properties and nonlinear optical switching behavior of bimetallic Au-Ag nanoparticles synthesized by femtosecond laser ablation. ***Optics & Laser Technology***, *140*, p.107022 (2021).
58. Udayan, S., Lakshmi, R., Anugop, B., Saipriya, P.P., Vengellur, A., Kailasnath, M., Nampoori, V.P.N. and Thomas, S., Role of bio-nanotemplates on the lasing behavior of LDS 821 dye. ***Optics & Laser Technology***, *139*, p.106973 (2021).
57. Simon, J., Anugop, B., Nampoori, V.P.N. and Kailasnath, M., Effect of pulsed laser irradiation on the thermal diffusivity of bimetallic Au/Ag nanoparticles. ***Optics & Laser Technology***, *139*, p.106954 (2021).
56. Ramya, M., Nideep, T.K., Nampoori, V.P.N. and Kailasnath, M., Studying the role of ZnO nanostructure photoanodes for improving the photovoltaic performance of CdSe QDSSCs. ***Journal of Materials Science: Materials in Electronics***, pp.1-11 (2021).
55. Joseph, M., Nampoori, V.P.N. and Kailasnath, M.,Low temperature structure tunability of zinc oxide nanostructures using milk protein casein. ***Surfaces and Interfaces***, *24*, p.101157 (2021).
54. Simon, J., Udayan, S., Nampoori, V.P.N. and Kailasnath, M., Investigations on nonlinear optical properties and thermal diffusivity of gold nanoparticle embedded protein complex. ***Optics & Laser Technology***, *138*, p.106859 (2021).

53. Sarkar, A., Nampoori, V.P.N. and Kailasnath, M., Spectral tuning of dye doped hollow polymer optical fiber with silver doped micro ring. ***Optics Communications***, p.127134 (2021).
52. Ramya, M., Nideep, T.K., Nampoori, V.P.N. and Kailasnath, M., The impact of ZnO nanoparticle size on the performance of photoanodes in DSSC and QDSSC: a comparative study. ***Journal of Materials Science: Materials in Electronics***, *32*(3), pp.3167-3179 (2021).
51. Simon, J., Udayan, S., Bindiya, E.S., Bhat, S.G., Nampoori, V.P.N. and Kailasnath, M., Optical characterization and tunable antibacterial properties of gold nanoparticles with common proteins. ***Analytical Biochemistry***, *612*, p.113975 (2021).
50. T K Nideep, M Ramya, V P N Nampoori, M Kailasnath,"The size dependent thermal diffusivity of water soluble CdTe quantum dots using dual beam thermal lens spectroscopy", ***Physica E: Low-dimensional Systems and Nanostructures*** 116, 113724, (2020).
49. TK Nideep, M Ramya M Kailasnath " An investigation on the photovoltaic performance of quantum dot solar cells sensitized by CdTe, CdSe and CdS having comparable size", ***Superlattice and Microstructures,*** 141(2020).
48. M Ramya, TK Nideep, VPN Nampoori, M Kail, Akshay Krishnaasnath "Understanding the role of alcohols in the growth behaviour of ZnO nanostructures prepared by solution based synthesis and its applications in solar cells" ***New Journal of Chemistry, RSC*** (2019)
47. M Ramya, TK Nideep, Meenakshi M Varier, VPN Nampoori, M Kailasnath " Concentration dependent thermo-optic properties of yellow emissive ZnO quantum dots", ***Material Research Express***, 6 (2019).
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44. T K Nideep, M Ramya, U Sony, M Kailasnath," MSA capped CdTe quantum dots for pH sensing application" ***Materials Research Express***,6(10), 105002,(2019)
43. T K Nideep, M Ramya, M Kailasnath," The influence of ZnS buffer layer on the size dependent efficiency of CdTe quantum dot sensitized solar cell ", ***Superlattices and Microstructure***, 130, 175-181(2019).
42. V R Anand, S Mathew, C L Linslal, P Radhakrishnan, M Kailasnath "Microring embedded hollow polymer optical fiber for refractive index sensing" ***Journal of Luminescence***, 209, 69-73 (2019).
41. Arindam Sarkar, Roopa Venkataraj, VPN Nampoori, M.Kailasnath, "Silver nanoparticles filled hollw polymer fibre laser with enhanced photostability", ***Optics and Laser Technology***, 112 , 255–260, 2019.
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39. Anand V.R , M.Kailasnath, "Tunable amplified spontaneous emission from dye doped hollow polymer optical fibre," ***Journal of Luminescence,*** 201, 1-4, (2018).
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