

Curriculum Vitae

Name: Dr Sanjoy Mandal

Address:

Permanent: Village & P.O – Amlagora
Dist. – Midnapore (West)
721121, West Bengal, India



Present: Department of Electrical Engineering, Academic Complex, R102
Indian Institute of Technology(ISM), Dhanbad, India, 826004

Email: sanjoymandal@iitism.ac.in , ismsanjoy@gmail.com

Contact: Phone: +91 326 2235405(O),
Mobile: +91 9470194782
Fax: +91-326-2296563

Nationality: Indian

Father's name: Late Amarendra Mandal

Date of birth: 06.05.1968

Religion: Hindu

Branch of Engineering: Electrical Engineering

Specialization: Instrumentation, Control & Photonics

Marital Status: Married

Physical Standard: Ht.-175 cm

Wt. - 70 Kgs.

Eyesight- Normal with glass (L:-2.75, R:-2.75)

Academic record:

Name of the University./Board	Examination passed	Year of passing	Division	% of marks
W.B.B.S.E	Secondary	1984	1	70 %
W.B.C.H.S.E	Higher Secondary	1986	1	65.3 %
Calcutta University	B.E (pt. 1 & pt. 2)	1988-1989	p	70 %
Calcutta university	B.E (pt. 3 & pt. 4)	1990-1991	1	75 %
Jadavpur University	M.E.E	1993	1	75 %
Jadavpur University	PhD(Engineering)	2007	-	-

Experience:

Sl. No	Organization's Name	Position	Duration	Details of experience
1	R. B. Data Comms. (P) Ltd, Salt lake , Kolkata	Production Engineer	One Year.	Design and development of digital A.C drives with P.W.M technology and IC based power supply units.
2	ESAB INDIA LTD IISCO House, Kolkata	Executive Officer	Three year.	Development and Marketing of welding rectifiers, welding inverters, etc.
3	Scientific Pollution Control and equipment (P) Ltd, N.S Road, Kolkata	Technical Director	Three years.	Design and development of industrial pollution control equipment's like bag filters, cyclone separator etc.
4	College of Engineering and Management, Kolaghat	Assistant Professor	Eight years.	Teaching of different Electrical Engineering subjects
5	IIT(ISM), Dhanbad, India	Assistant Professor.	Four years	Teaching of different Electrical Engineering subjects and Research
5	IIT(ISM), Dhanbad, India	Associate Professor	Ten years	----- Do -----
6	IIT(ISM), Dhanbad, India	Professor	From August 17, 2023 to current date	----- Do -----

Publication details: Articles published in international journals (SCI)(Last few years):

Sl. No	Year	Paper Title, Author(s), Journal, Volume no., Page no, Year
1	2025	Shekhar A, Mandal S, 'Z-domain Modeling and Performance Evaluation of Triple Optical Ring Resonator with embedded Bragg Gratings as Optical Filter & Biosensor' , IEEE Sensors Journal, 25(16), 2025, 30727-30734, DOI 10.1109/JSEN.2025.3584879.
2	2025	Suraj Saha, S Mandal , ' π -phase-shift High-Contrast Bragg Grating Embedded Micro-Optical SRR Filter: Zdomain Modelling and Spectral Analysis', Optic Communications, Elsevier, S0030-4018(25)00881-8, 2025, DOI: https://doi.org/10.1016/j.optcom.2025.132353
3	2025	Shekhar A, Mandal S, 'Design and Analysis of Modified Double Ring Resonator With Embedded High Contrast Optical Bragg Grating as an Optical Filter and a Biosensor', IEEE Transactions on Nanotechnology, (24), 330-337, 2025
4	2025	Suraj Saha, S Mandal "High contrast grating embedded multi-bus micro-optical triple ring-resonated temperature sensor design and simulation", Optik, 327(2025), 172276
5	2025	Shekhar A, Ranjan R, Mandal S , "Model of double optical ring resonator configuration as a biosensor using FDTD numerical method" , Optical and Quantum Electronics (2025) 57:35 https://doi.org/10.1007/s11082-024-07948-6

6	2025	Shekhar A, Mandal S," Modeling and z domain analysis of a modified double ring resonator for optical filtering", Optical and Quantum Electronics, Springer Nature, (2025) 57(315)
7	2025	A Mishra, S Mandal, et al. 'Non-Linear Control of Interleaved Boost Converter Using Disturbance Observer-Based Approach', IEEE Access, 23833-23440, 13 (2025)
8	2025	G Mandal, A Kumar, S Mandal "Assessment of metrological characterisation of 30000 kg weighting balance using a novel step up method expandable up to 50000 kg", MAPAN, Springer, 40(2025), 523-532
9	2025	Ritu Ranjan, S Mandal, "Quantification methodologies of three systematic errors of Sinusoidal Encoders employing two magnitude-to-time-to-digital converter in static and dynamic conditions" , Measurement , Elsevier, 253(2025)117361
10	2024	Suraj Saha, S Mandal, "Z-domain Modelling and Performance Analysis of High Contrast Grating Embedded Micro-Optical Double Ring-Resonance Filters", Optical and Quantum Electronics, Springer Nature, 56(2024)1664.
11	2024	Mala A, Mandal S,"Triple-Ring Multibus System as an Optical Filter: Modelling and Performance Analysis", Brazilian Journal of Physics (2024) 54:154
12	2024	A Mishra, S Mandal , "Comparative study of the Normalised Error Based Control and Traditional Current Mode Control for a sixth Order Boost Converter" , IEEE Access, 102181-102187, 12 (2024)
13	2024	Parimal, S Mandal, "Design of an optical square root evaluator based on a two-bit optical divider circuit using a micro-optical ring resonator (MORR) in the Z-domain.", Optical and Quantum Electronics, Springer Nature, (2024) 56:493.
14	2024	S Kundu, M Hossain, S Mandal, "Design and analysis of all-optical carry lookahead adder using microring resonator in Z-domain", Optical Engineering, Opt. Eng. 63(1), 10182 (2024)
15	2023	Anshu Mala, S Mandal, "Modelling and Performance Analysis of Cascaded Asymmetrical Quadruple Micro-Optical Ring Resonator as an Optical Filter", Optical and Quantum Electronics, Springer Nature, (2023), 55 (969)
16	2023	Parimal, S Mandal, "Design of an optical test bench (OTB) for an N-bit optical multiplier, optical convolution, and optical correlation circuit using an optical microring resonator in the Z-domain", Optical and Quantum Electronics, Springer Nature ,(2023) 55:844.
17	2023	S Kundu, M Hossain, S Mandal, "Modeling of silicon microring resonator based programmable logic device for various arithmetic and logic operation in Z-domain", Optical and Quantum Electronics, Springer Nature, (2023) 55:175
18	2022	Vartika Rao, Sanjoy Mandal, "Design of an efficient optical analog-to-digital converter using silicon waveguide based all-optical synchronous up counter", Optical and Quantum Electronics, Springer (2022) 54:686.
19	2022	Vartika Rao, Sanjoy Mandal, " Design of all-optical 6:3 binary counter based on symmetrical stacking using optical micro ring resonators", Optik, 267(2022), 169704.

20	2022	Das, M.S., Samanta, A., Sanyal, S., Mandal, S., Navigation of Multiple Robots in formative manner in an unknown Environment using Artificial Potential Field based path planning algorithm. Ain Shams Engineering Journal(Elsevier), Volume 13, Issue 5, 2022, 101675.
21	2021	K Singh, S Mandal, “Test bed for all-optical universal JK flip-flop (FF) and master-slave JK FF using ripple ring resonator (RRR) with Z-domain mathematical pedestal, and its application as synchronous up-counter”, Optik, 249(2022), 168261.
22	2021	S Ranjan, S Mandal, P Rai, "Modelling and analysis of quadruple asymmetrical optical micro-ring resonator for biosensing application," IEEE Sensors Journal, 21(11), 19904-19911, 2021.
23	2021	M S Das, A Samanta, S Sanyal, S Mandal, “ AKH-NFIS: Adaptive Krill Herd Network Fuzzy Inference System for Mobile Robot Navigation", Wireless Personal Communications, Springer Nature, 2021, DOI: https://doi.org/10.1007/s11277-021-08619-5 .
24	2021	M S Das, A Samanta, S Sanyal, S Mandal, “Support Value-Based NFSMC for Wheeled Mobile Robot Path Tracking in Unknown Environments”, Wireless Personal Communications, Springer Nature, 2021, DOI: https://doi.org/10.1007/s11277-021-08382-7 .
25	2021	K Singh, S Mandal, “Z-domain mathematical modeling and performance analysis of ripple ring resonator (RRR) with design of all-optical arithmetic logic unit (ALU)”, Optik, 232(2021), 166532.
26	2021	Biswajit Ghosh, Sanjoy Mandal ,”Resonant Filters based on Ring Resonator with Multiple π Phase-Shifted Fiber Bragg Grating”, IEEE Sensors Journal, 21(19), 21529-21536, 2021.
27	2021	Vartika Rao, Sanjoy Mandal, “Modeling and analysis of all-optical 2-bit and 4-bit synchronous up counter using silicon waveguide based all-optical JK flip-flop in Z domain”, Optik, 228(2021), 166173.
28	2021	Binshati Chatterjee and Sanjoy Mandal ,“Designing of Optical Filter Based on Modelling Procedure of Multilayer Quadruple Combined Micro Ring Resonator (MQCMRR) Structure with 2×3 I/O Bus Waveguides”,Optik, 228(2021), 166175.
29	2020	Biswajit Ghosh, Sanjoy Mandal, “Modeling and performance analysis of single fiber ring incorporated with fiber Bragg grating,” Opt. Eng. 59(5), 056104 (2020),
30	2020	Biswajit Ghosh, Sanjoy Mandal, “Mathematical Modeling of π -Phase-Shifted Fiber Bragg Grating and it Application for Strain Measurement in Epoxy Resin Cantilever Beam”, IEEE Sensors Journal, 20(17), 9856-9863, 2020.
31	2020	Biswajit Ghosh, Sanjoy Mandal ,”Transmission Characteristics of Double Fiber Ring with Fiber Bragg Grating”, Journal of Optical Society of America B, Optical Physics, 37(3),840-846, (2020).
32	2020	Biswajit Ghosh, Sanjoy Mandal, “A generalized approach for modeling and analysis of fiber Bragg grating based cavity structures” ,Optical and Quantum Electronics, Springer(2020), 52(38)
33	2019	Binshati Chatterjee and Sanjoy Mandal, “Z-domain modeling approach of a multilayer sextuple-coupled micro-ring resonator with 1x5 input-output bus waveguides as optical filter", Applied Optics, OSA,Vol. 58, Issue 28, pp. 7868-7877, 2019
34	2019	K Singh, S Mandal, “Design and performance analysis of all-optical 1:4 and 1:8 high speed demultiplexer using InGaAsP–InP optical microring resonator in Z-domain”, Optical and Quantum Electronics, Springer Nature, https://doi.org/10.1007/s11082-019-1968-8 ,

35	2019	G Mandal, A Kumar, S Mandal “Volume Measurement of Large Volumetric Vessel Using Tap Water”, MAPAN-Journal of Metrology Society of India, pp 1-7, Springer, https://doi.org/10.1007/s12647-019-00319-7 .
36	2019	B Ghosh, S Mandal, “Modeling and Performance Analysis of Bragg Grating in Z-domain”, IEEE Photonics Technology Letters, 30(5),2018, 411-414.
37	2018	Subhankar Addya, Sabitabrata Dey, Sanjoy Mandal, ‘Performance study of optical resonator based filter architectures’, IET Circuits, Devices & Systems, 12(6), 802-809, 2018.
38	2018	S Ranjan, S Mandal, “Performance analysis of triple asymmetrical optical multiple ring resonator with a 1x3 input-output waveguide for application as an optical filter”, 57(9), 2018, OSA, Applied Optics, 2040-2049.
39	2018	Binshati Chatterjee, Sanjoy Mandal, “Performance analysis of vertically cascaded pentacle micro-optical ring resonator as optical filters with four output bus waveguides,” Opt. Eng. 57(11), 116103 (2018)
40	2018	Parimal, Sanjoy Mandal, “Design of cyclic code to BCD code conversion and its performance analysis in Z-domain using optical microring resonator”, Opt. Eng. 57(11), 116104 (2018).
41	2018	S. Ranjan and S. Mandal, “Performance analysis of quadruple asymmetrical optical micro ring resonator as an optical filter,” Optik, 171,821-832, 2018.
42	2018	Deepak Kumar Gope, Uday Kumar, Somnath Chattopadhyaya , Sanjoy Mandal, “Experimental investigation of pug cutter embedded TIG welding of Ti-6Al-4V titanium alloy”, 32(6), 2018, J of Mechanical Science and Technology.
43	2017	S Ranjan, S Mandal, Springer, “Performance Analysis of Triple Asymmetrical Optical Micro Ring Resonator with 2×2 Input-Output Bus Waveguide”, Brazilian Journal of Physics, 48(1),74-84,2017
44	2017	N Verma, S Mandal, “Design And Performance Analysis Of Optical Micro-Ring Resonator Based J-K Flip-Flop” , Optical Engineering, SPIE(AIP),56(3),037103, 2017
45	2017	S Bagchi, S Mandal, S Sengupta, “Development and Characterization of a Wireless Mouse Based Spirometer”, 17(7), 2017, 2065 – 2073, IEEE sensor Journal.
46	2017	S Bagchi, S Mandal, S Sengupta,"Development and Characterization of Carbonic Anhydrase Based CO ₂ Biosensor for Primary Diagnosis of Respiratory Health." 17(5), 2017, 1384-1390, IEEE sensor Journal.
47	2017	S Lakra, S Mandal, “An analytical approach for modelling and performance analysis of microring resonator as optical filter with multiple output bus waveguides”, Optical Engineering, SPIE (AIP),56(6),066114, 2017.
48	2016	S Ranjan, S Mandal, S Lakra, “Quadruple micro optical multiple asymmetric ring resonator performance analysis as optical filter”, Optik, Volume 127, Issue 23, 2016, 11075–11085.
49	2016	S Lakra, S Mandal, “Analytical modeling and performance analysis of multilayer coupled asymmetrical microring resonators in Z-domain”, Optik,Volume 127, Issue 20, 2016, 9517–9531.
50	2016	S Lakra, S Mandal, “Design and realisation of vertically coupled quadruple micro optical ring resonator(VCMORR) in Z domain”, Optik, 135, 2016, 373–382.

51	2016	N Verma , S Mandal, "Performance analysis of optical micro-ring resonator as all-optical reconfigurable logic and multiplexer in Z-domain", Journal of Nonlinear Optical Physics & Materials Vol. 25, No. 1 (2016) 1650013.
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- Number of Articles published/presented in national /international conferences/proceedings and SCOPUS indexed journal: 71
- Topic of PhD work: Study and use of ring resonator performance as optical filter.
- Member of Professional body: SPIE, USA.
- Software skill: MATLAB, PSPICE, OPTIFDTD
- Number of PhD thesis supervised: 13
- Number of PhD research scholar working: 08
- Patent Granted: 01 [Breathe Analysis Device for Health Assessment], Patent No.: 414659

List of External funded R&D Projects undertaken :

Sl no	Project Title	Role	Funding agency	Sanction Date	Status	Sanctioned amount (INR)
1	Design and development of fiber ring loop down (FRLD) based monitoring system for roof safety measure in underground mines	PI	DST SERB	May 29, 2019	Completed on June 6, 2022	33,38,764
2	Design and Modelling of Microring Resonator based Biosensor	Co-PI	NPIU, A unit under MHRD	June 18, 2019	Completed	14,96,000
3	Design and Development of An Waveguide Based Wide FSR Ultra-Fast Multiple Optical Ring Resonator	PI	UGC	01/02, 2010	Completed on 31/01/2013	8.80,000
4	Development of Static VAR Compensator (STATCOM) for Self-Excited Variable Speed Induction Generator	Co-PI	UGC	01/02/ 2010	Completed on 30/01/2012	9,16,000
5	Online Condition Monitoring of Heavy Duty Electrical Drives	Co-PI	UGC	01/02/ 2012	Completed on 30/01/2015	9,37,000
6	Design and development of a novel fiber optic temperature sensor for electrical process equipment	PI	TEQIP-II	15/07/2013	14/07/2015	2,00,000
7	Optimal Allocation of FACTS Devices for the Increased Loadability of Power Systems in Deregulated Electricity Market	Co-PI	UGC	01/02/ 2012-	30/01/2015	3,71,000

Details of Administrative Experience in IIT(ISM):

Sl No.	Position	Duration		Year of Experience
		From	To	
1	Associate Dean (Students' welfare) – Students' Activities	20/10/2023	Current Date	11 months
2	SPEC - President			
3	B & W Committee (Member)			
2	Laboratory In Charge (Electrical & Instrumentation Lab)	05/01/2009	Current Date	14 Years
3	Faculty In Charge (Placement, EE department)	07/07/2014	Current Date	9 Years
4	Faculty In Charge (Time Table, EE department)	06/01/2014	29/06/2018	4 Years
5	DUGC Member (EE Department)	04/03/2019	30/11/2021	1.5 Years
6	Co-ordinator (3 Year M Tech, PEED, IIF Kolkata)			

List of awards and honours:

- Erasmus Mundus scholarship was awarded for one month research mobility program in City University, London from 11.06.2016 to 12.07.2016, funded by European Commission.
- Co-author of the book titled: Control Systems, McGraw Hill.
- Lecture delivered as key note speaker in SERB sponsored High End Workshop on “Photonics Sensor For Chemical and Gas Detection”

Other Information:

- 1) Worked as supervisor of various undergraduate and post graduate level projects.
- 2) Evaluated several PhD thesis from reputed Institutes
- 3) Delivered invited lectures in several reputed Institutes
- 4) Worked as reviewer of research articles of SCI journals.