Publications of Dr. Mrinal Sen

International Journals:

[1] Kamanashis Goswami, Haraprasad Mondal, and Mrinal Sen, "Design of all optical logic half adder based on holes-in-slab photonic crystal," Optical and Quantum Electronics, vol. 56, pp. 1-14, 2024.

[2] Akash Kumar Pradhan, Mrinal Sen, and Tanmoy Datta, "Raman based on-chip photonic quantizers for ADCs," J. Opt. Soc. Am. B, vol. 40, pp. 1076–1082, May 2023. https://opg.optica.org/josab/abstract.cfm?URI=josab-40-5-1076

[3] Kamanashis Goswami, Haraprasad Mondal, and Mrinal Sen, "Design of 1-to-2-line all-optical decoder based on MMI phase shifter," Optical and Quantum Electronics, vol. 55, pp. 1-17, 2023.

[4] Haraprasad Mondal et al., "Design and simulation of phase shifter based on multimode interference in photonic crystal waveguide," The European Physical Journal D, vol. 77, pp. 1-10, 2023.

[5] Kamanashis Goswami, Haraprasad Mondal, and Mrinal Sen, "Design and analysis of passive and phase insensitive all-optical isolator in linear optical platform," Optics Communications, vol. 529, p. 129071, 2023. https://www.sciencedirect.com/science/article/pii/S0030401822007180

[6] Akash Kumar Pradhan, Mrinal Sen, and Tanmoy Datta, "Raman mediated solitonic pulse compression," J. Opt. Soc. Am. B, vol. 39, pp. 1686–1693, June 2022. http://opg.optica.org/josab/abstract.cfm?URI=josab-39-6-1686

[7] Kamanashis Goswami, Haraprasad Mondal, and Mrinal Sen, "Optimized design of multiple bends for maximum power transfer in optical waveguide," Optik, vol. 265, p. 169448, 2022. https://www.sciencedirect.com/science/article/pii/S0030402622007653

[8] Kaushik Shukla, Tanmoy Datta, and Mrinal Sen, "MEMS based bimorph optical temperature sensor," Journal of Applied Physics, vol. 131, p. 214501, 2022. https://aip.scitation.org/doi/abs/10.1063/5.0091616

[9] Shatrughna Kumar and Mrinal Sen, "Low-power, high-performance, and small-footprint, single-pump optical parametric amplifier for photonic integrated circuits," Journal of Applied Physics, vol. 132, p. 123106, Sep. 2022.

[10] Akash Kumar Pradhan, Mrinal Sen, and Tanmoy Datta, "LED pumped Raman laser: Towards the design of an on-chip all-silicon laser," Optics & Laser Technology, vol. 147, p. 107634, 2022. https://www.sciencedirect.com/science/article/pii/S0030399221007222

[11] Haraprasad Mondal, Kamanashis Goswami, Mrinal Sen, and Wasikur Rahaman Khan, "Design and analysis of all-optical logic NOR gate based on linear optics," Optical and Quantum Electronics, vol. 54, pp. 1-14, 2022.

[12] Kamanashis Goswami, Haraprasad Mondal, Mrinal Sen, and Anup Sharma, "Design and Analysis of All-Optical Isolator Based on Linear Photonic Crystal," Brazilian Journal of Physics, vol. 52, pp. 1-10, 2022.

[13] Anup Sharma, Kamanashis Goswami, Haraprasad Mondal, Tanmoy Datta, and Mrinal Sen, "A review on photonic crystal based all-optical logic decoder: linear and nonlinear perspectives," Optical and Quantum Electronics, vol. 54, pp. 1-24, 2022.

[14] Partha Saha and Mrinal Sen, "Ultrahigh Q-Factor and Ultrasensitive Refractive Index Sensor Based on a Multiple-Slot Photonic Crystal Cavity," IEEE Transactions on Instrumentation and Measurement, vol. 70, pp. 1-9, 2021.

[15] Chandra Prakash and Mrinal Sen, "Significance of Bloch impedance over wave impedance in photonic crystal waveguides," J. Opt. Soc. Am. B, vol. 38, pp. 1997–2003, June 2021. http://josab.osa.org/abstract.cfm?URI=josab-38-6-1997

[16] Partha Saha and Mrinal Sen, "NOEMS Based Slotted Photonic Crystal Cavity for the Sensing of Force," IEEE Transactions on Nanotechnology, vol. 20, pp. 20-27, 2021.

[17] Yash Raj, Kaushik Shukla, Tanmoy Datta, and Mrinal Sen, "Micro Cantilever-Based Optical Gravimeter," IEEE Sensors Journal, vol. 21, pp. 14759-14766, 2021.

[18] Shatrughna Kumar and Mrinal Sen, "Integrable all-optical switch for photonic integrated circuits," J. Opt. Soc. Am. B, vol. 38, pp. 611–620, Feb. 2021. http://josab.osa.org/abstract.cfm?URI=josab-38-2-611

[19] Kamanashis Goswami, Haraprasad Mondal, and Mrinal Sen, "A review on all-optical logic adder: Heading towards next-generation processor," Optics Communications, vol. 483, p. 126668, 2021. http://www.sciencedirect.com/science/article/pii/S0030401820310865

[20] Chandra Prakash and Mrinal Sen, "A Compact TE-Notch Filter With Simultaneous Capability of TM-Suppression and Sensing Applications," IEEE Transactions on Nanotechnology, vol. 20, pp. 644-652, 2021.

[21] Tanmoy Datta and Mrinal Sen, "Raman mediated ultrafast all-optical NOR gate," Appl. Opt., vol. 59, pp. 6352–6359, July 2020. http://ao.osa.org/abstract.cfm?URI=ao-59-21-6352

[22] Chandra Prakash and Mrinal Sen, "Optimization of silicon-photonic crystal (PhC) waveguide for a compact and high extinction ratio TM-pass polarization filter," Journal of Applied Physics, vol. 127, p. 023101, 2020. https://doi.org/10.1063/1.5130160

[23] Shatrughna Kumar and Mrinal Sen, "Integrable all-optical NOT gate using nonlinear photonic crystal MZI for photonic integrated circuit," J. Opt. Soc. Am. B, vol. 37, pp. 359–369, Feb. 2020. http://josab.osa.org/abstract.cfm?URI=josab-37-2-359

[24] Mahammad Arif Sanjid, K. P.Chaudhary, Sanjay Yadav, Mrinal Sen, and Sanjoy K. Ghoshal, "An accurate inner diameter measurement," Review of Scientific Instruments, vol. 91, p. 065112, 2020. https://doi.org/10.1063/1.5135359

[25] Tanmoy Datta and Mrinal Sen, "All-optical logic inverter for large-scale integration in silicon photonic circuits," IET Optoelectronics, Apr. 2020. https://digital-library.theiet.org/content/journals/10.1049/iet-opt.2019.0081

[26] Mahammed Arif Sanjid, Sanjoy K. Ghoshal, and Mrinal Sen, "Reviving the inter-laboratory comparison measurement results," Transactions of the Institute of Measurement and Control, vol. 0, p. 0142331219879817, 2019. https://doi.org/10.1177/0142331219879817

[27] Haraprasad Mondal, Mrinal Sen, and Kamanashis Goswami, "Design and analysis of all-optical 1-to-2 line decoder based on linear photonic crystal," IET Optoelectronics, Feb. 2019. https://digital-library.theiet.org/content/journals/10.1049/iet-opt.2018.5099

[28] Haraprasad Mondal, Mrinal Sen, and Kamanashis Goswami, "Design and analysis of a 0.9 Tb/s six-channel WDM filter based on photonic crystal waveguides," J. Opt. Soc. Am. B, vol. 36, pp. 3181–3188, Nov. 2019. http://josab.osa.org/abstract.cfm?URI=josab-36-11-3181

[29] Akash Kumar Pradhan and Mrinal Sen, "An integrable all-silicon slotted photonic crystal Raman laser," Journal of Applied Physics, vol. 126, p. 233103, Dec. 2019. https://doi.org/10.1063/1.5121230

[30] Mahammad Arif Sanjid, Sanjay Yadav, Mrinal Sen, and Sanjoy K. Ghoshal, "A Review of Diameter Measurement and a Proposal for the Improvement Thereof," MAPAN, 2019. https://doi.org/10.1007/s12647-019-00360-6

[31] Tanmoy Datta and Mrinal Sen, "Integrable all-optical pass switch," Electronics Letters, vol. 54, no. 25, pp. 1446-1448(2), Dec. 2018. https://digital-library.theiet.org/content/journals/10.1049/el.2018.6350

[32] H. Mondal, Mrinal Sen, Chandra Prakash, Kamanashis Goswami, and C. K. Sarma, "Impedance matching theory to design an all-optical AND gate," IET Optoelectronics, vol. 12, pp. 244-248, 2018.

[33] Shatrughna Kumar and Mrinal Sen, "High-gain, low-threshold and small-footprint optical parametric amplifier for photonic integrated circuits," J. Opt. Soc. Am. B, vol. 35, pp. 362–371, Feb. 2018. http://josab.osa.org/abstract.cfm?URI=josab-35-2-362

[34] Tanmoy Datta, Mrinal Sen, Shatrughna Kumar, and Akash Kumar Pradhan, "Efficient pump-signal combiner for stimulated Raman scattering in photonic crystal waveguide," Optical Engineering, vol. 57, pp. 57 - 57 - 5, 2018. https://doi.org/10.1117/1.OE.57.7.075103

[35] Chandra Prakash, Mrinal Sen, Haraprasad Mondal, and Kamanashis Goswami, "Design and optimization of a TE-pass polarization filter based on a slotted photonic crystal waveguide," J. Opt. Soc. Am. B, vol. 35, pp. 1791–1798, Aug. 2018. http://josab.osa.org/abstract.cfm?URI=josab-35-8-1791

[36] Partha Saha and Mrinal Sen, "A Slotted Photonic Crystal Nanobeam Cavity for Simultaneous Attainment of Ultra-High Q-Factor and Sensitivity," IEEE Sensors Journal, vol. 18, pp. 3602-3609, May 2018.

[37] Mahammad Arif Sanjid, K. P. Chaudhary, Sanjay Yadav, Mrinal Sen, and Sanjoy K. Ghoshal, "A novel method of diameter measurement of pistons used in pressure standards using scanning principle and fusion technique," Measurement Science and Technology, vol. 29, p. 085008, 2018. http://stacks.iop.org/0957-0233/29/i=8/a=085008

[38] Tanmoy Datta and Mrinal Sen, "LED pumped micron-scale all-silicon Raman amplifier," Superlattices and Microstructures, vol. 110, pp. 273-280, 2017. http://www.sciencedirect.com/science/article/pii/S0749603617316683

[39] Tanmoy Datta and Mrinal Sen, "Characterization of slotted photonic crystal waveguide and its application in nonlinear optics," Superlattices and Microstructures, vol. 109, pp. 107-116, 2017. http://www.sciencedirect.com/science/article/pii/S0749603617308996

[40] Bindu Priyadarshini, Mukul Kumar Das, Mrinal Sen, and Subindu Kumar, "Radial microwire array solar cell with pyramidal structure," Superlattices and Microstructures, vol. 98, pp. 208-219, 2016. http://www.sciencedirect.com/science/article/pii/S0749603616305420

[41] Mrinal Sen and Mukul K. Das, "High-speed all-optical logic inverter based on stimulated Raman scattering in silicon nanocrystal," Appl. Opt., vol. 54, pp. 9136–9142, Nov. 2015. http://ao.osa.org/abstract.cfm?URI=ao-54-31-9136

[42] Mrinal Sen and Mukul K. Das, "Raman mediated all-optical cascadable inverter using silicon-on-insulator waveguides," Opt. Lett., vol. 38, pp. 5192–5195, Dec. 2013. http://ol.osa.org/abstract.cfm?URI=ol-38-23-5192

[43] Mrinal Sen and Mukul K. Das, "Determination of resonance frequencies in silica fiber using SRS gain," Optical and Quantum Electronics, vol. 45, pp. 735–745, July 2013. https://doi.org/10.1007/s11082-013-9679-z

International Conferences:

[1] Shivesh Kumar, and Mrinal Sen, “Design and Analysis of an Optical Gas Sensor based on Refractive Index of different gases including Methane and Carbon Monoxide,” in international conference on Safe, Smart and Sustainable Mining (3SM), 16-18 December, 2023, Goa, India.

[2] Akash Kumar Pradhan, Anis Kumar Kabiraj, and Mrinal Sen, “A photonic crystal ring resonator with circular air slot to achieve high quality factor,” in International Symposium on Optomechatronic Technologies (ISOT), 11-13 November 2019 Goa, India.

[3] Shatrughna Kumar, Kamanashis Goswami, Akash Kumar Pradhan, and Mrinal Sen, “An Integrateable Wavelength Division Demultiplexer for Photonic Integrated Circuits,” in International Symposium on Optomechatronic Technologies (ISOT), 11-13 November 2019 Goa, India.

[4] Chandra Prakash, Partha Saha, and Mrinal Sen, “W1 photonic crystal slab waveguide as an ultra-compact TE-pass polarization filter,” Proc. SPIE 10927, Photonic and Phononic Properties of Engineered Nanostructures IX, 109272A, 4 March 2019; https://doi.org/10.1117/12.2512165

[5] Haraprasad Mondal, Kamanashis Goswami, and Mrinal Sen, “Optimized Design of 60 Degree Bend in Optical Waveguide for Efficient Power Transfer,” 3RD INTERNATIONAL CONFERENCE ON Communication, Devices and Networking (ICCDN-2019), 9-10th December, 2019, Sikkim Manipal Institute of Technology, Sikkim.

[6] Akash Kumar Pradhan, Shatrughna Kumar, and Mrinal Sen, “Width modulated cascaded photonic crystal nanocavity for Wavelength Division Multiplexing,” JSAP-OSA Joint Symposia 2018, Nagoya Japan, 18–21 September 2018, ISBN: 978-4-86348-694-2.

[7] Tanmoy Dutta, Akash Kumar Pradhan, Shatrughna Kumar and Mrinal Sen, “Unified Coupled Equations for Raman Mediated Interaction in Slow-light Regime,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 21, Dhanbad, Jharkhand, India, February 9-11, 2018.

[8] Shatrughna Kumar, Tanmoy Dutta, Akash Kumar Pradhan and Mrinal Sen, “Observation of pulse-Phase Shift in a Highly-nonlinear Slotted Photonic Crystal Waveguide,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 32, Dhanbad, Jharkhand, India, February 9-11, 2018.

[9] Partha Saha, Rashmi kumara, Akash Kumar Pradhan and Mrinal Sen, “A slotted photonic crystal ring resonator for refractive index sensing,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 76, Dhanbad, Jharkhand, India, February 9-11, 2018.

[10] Sweta Rani, Akash Kumar Pradhan, Shatrughna Kumar and Mrinal Sen, “Supercontinuum generation through nanowire As2S3 chalcogenide core photonic crystal fiber,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 76, Dhanbad, Jharkhand, India, February 9-11, 2018.

[11] Haraprasad Mondal, Kamanashis Goswami, Chandra Prakash and Mrinal Sen, “An all-optical ultra-compact 4-channel wavelength de-multiplexer,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 62, Dhanbad, Jharkhand, India, February 9-11, 2018.

[12] Akash Kumar Pradhan, Tanmoy Dutta, Partha Saha and Mrinal Sen, “Width Modulated Tapered Air-Slot based Photonic Crystal Nanocavity,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 46, Dhanbad, Jharkhand, India, February 9-11, 2018.

[13] Chandra Prakash, Haraprasad Mondal, Kamanashis Goswami and Mrinal Sen, “Investigation for the efficient interface of strip and PhC Slot waveguide,” in Proceedings of 3rd International Conference on Microwave and Photonics, p. 34, Dhanbad, Jharkhand, India, February 9-11, 2018.

[14] Abhishek Jha and Mrinal Sen, “Use of FES with Vibrotactile feedback for Motor Learning,” IEEE International conference on Internet of Things and Applications (IOTA 2016), Maharashtra Institute of Technology, Pune, India, 22th-24th January 2016.

[15] Haraprasad Mondal, Saurav Chanda, Mrinal Sen and Tanmoy Datta, "All Optical AND Gate based on Silicon Photonic Crystal," 2nd International Conference on Microwave and Photonics, ISM, Dhanbad, Jharkhand, India, 11-13 December, 2015.

[16] Rajib Ratan Ghosh, Tanmoy Datta, Haraprasad Mondal, and Mrinal Sen, "Efficient TE-pass polarizer based on Photonic Crystal Slot Waveguide," Accepted in 1st International Conference in Opto-Electronics and Photonics Materials (ICOPMA-2015), Centre for Nonlinear Science and Engineering (CeNSE), School of Electrical and Electronics Engineering, SASTRA University, Thanjavur, Tamilnadu, India, 27-28 February, 2015.

[17] Abhishek Jha, Keshav Gupta and Mrinal Sen, "M2M Communication System for Networked Robots with Low Memory Footprint," International Conference on Information Technology Systems and Innovation (ICITSI) 2014, Bandung-Bali, 24-27 November, 2014, ISBN: 978-1-4799-6526-7.

[18] Somenath Dutta, Tanmoy Datta, Mrinal Sen and Arpan Deyasi, "Design of Efficient Photonic Coupler Structure for Lumped Raman Amplification in Silicon Waveguides," International Conference on Devices, Circuits and Communications (ICDCCOM-2014), BIT Meshra, India, 12-13 September, 2014.

[19] Abhishek Jha and Mrinal Sen, "SEMG Based Study On The Difference In The Muscle Strength Of A Half Paralytic Person Due To Stroke," 2014 International Conference on Innovations in Engineering and Technology (ICIET'14), K.L.N. College of Engineering, Madurai, Tamilnadu, India, 21-22 March, 2014.

[20] Manan Temani, Rohank Agarwal, Rhythm Kohli, and Mrinal Sen, "Smart Approach to Traffic Management Using LabVIEW," Proceeding of Fifth International Conference on Intelligent Systems, Modelling and Simulation, p 62, ISBN 978-1-4799-3857-5, Langkawi, Malaysia, 27-29 January, 2014.

[21] Mrinal Sen, Tanmoy Datta and Mukul K. Das, "Effect of geometry and reverse bias on free carrier lifetime in p-i-n structured optical rib waveguide," in Proceeding of International Conference on Microwave and Photonics (ICMAP 2013), Dhanbad, Jharkhand, India. 13-15 December, 2013.

[22] Mrinal Sen and Mukul K. Das, "Stimulated Raman Scattering based All-Optical Logic Inverter using Tellurite Fiber," (accepted for publication) in Proceeding of International Conference on Microwave and Photonics (ICMAP 2013), Dhanbad, Jharkhand, India. 13-15 December, 2013.

[23] Mrinal Sen and Mukul. K. Das, 2012, "Determination of resonance frequencies in silica fiber using SRS gain," in Proceeding of the 12th International Conference on Numerical Simulation of Optoelectronics Devices (NUSOD-12), pp. 137–138. Shanghai, China, 2012.

[24] Rajeev Arya, B. V. Sai Kiran, Y. S. P. Kumar, J. C. P. Reddy, Ravi T. Nandula, Mrinal Sen and R. Janarthanan, "Autonomous navigation of vehicle using visual feedback," in proceeding of International Conference on Computing, Communication and Information Technology (ICCCIT-2012), pp. 185-189, Thiruninravur, Chennai, India, 2012.

[25] Mrinal Sen, Sheli Sinha Chaudhury, Amit Konar, R. Janarthanan, "An Evolutionary Gene Expression Microarray Clustering Algorithm Based on Optimized Experimental Conditions," in World Congress on Nature & Biologically Inspired Computing (NaBIC 2009), pp. 760-765, DOI: 10.1109/NABIC.2009.5393872, 2009.

National Conferences:

[1] Rajeev Arya, Mrinal Sen, K. Goswami and H. P. Mondal, "Design of mobile robot and it's optimum path planning," in Proceeding of National Conference on Emerging Trends in Computer Technology (NCETCT-2012), Shirpur, Maharastra, India, 21 April, 2012.

[2] Mrinal Sen and Mukul K. Das, "Theoretical Modeling of Resonance Frequency for Susceptibility of Optical Fiber Using Raman Gain Spectrum," in Proceeding of Frontiers in Electronics Communication and Instrumentation Technology" (FECIT 2011), ISM Dhanbad, India, Nov 3-4, 2011.

Details of book chapters published:

[1] Mrinal Sen, and Tanmoy Datta, "Slotted Photonic Crystal Waveguide: An Effective Platform for Efficient Nonlinear Photonic Applications", Photonics, Plasmonics and Information Optics: Research and Technological Advances, CRC Press, 2021, 1st Edition, eBook ISBN: 9781003047193