

Research Publications:

1. R. Guchhait, D. Maurya and **Devendra Chack**, "Compact on-chip Dual Grating Filter using Backward Mode Conversion," in *IEEE/ Optica Journal of Lightwave Technology*, vol. 43, no. 15, pp. 7305-7310, 1 Aug.1, 2025, doi: <https://doi.org/10.1109/JLT.2025.3573514>
2. R. Guchhait, S. Hassan, **Devendra Chack** and G. Kumar, "Broadband On-Chip Three Mode (De) Multiplexer Using SWG-Asymmetric Adiabatic Coupling," in *IEEE Photonics Technology Letters*, vol. 37, no. 8, pp. 497-500, 15 April 15, 2025, doi: <https://doi.org/10.1109/LPT.2025.3556783>
3. Diksha maurya , **Devendra Chack** and Vickey G, "Compact and Efficient Transverse Spliced Waveguide Grating Antenna for Integrated Optical Phased Array," in *IEEE Transactions on Nanotechnology*, vol. 23, pp. 665-672, 2024, doi: <https://doi.org/10.1109/TNANO.2024.3459472>
4. **Devendra Chack** and G. Kumar, "On-chip Non-Blocking 4×4 and 8×8 Photonic Switches Using MMI-MZI Configuration for Next-Generation Data Center Networks," in *IEEE Transactions on Nanotechnology*, vol. 24, pp. 216-223, 2025, doi: 10.1109/TNANO.2025.3558256
5. Gaurav Kumar, **Devendra Chack**, $1 \times N$ ($N = 2, 4$) dual-mode optical switch based on multimode interference coupler. *Opt Quant Electron* 57, 236 (2025). <https://doi.org/10.1007/s11082-025-08174-4>
6. Sunil Narayan Thool, **Devendra Chack**, "Next-generation optical networks: Integrating adaptive FEC rate LDPC and higher order probabilistic constellation shaping", *Optical Fiber Technology*, Volume 94, 2025, 104324,ISSN 1068-5200, <https://doi.org/10.1016/j.yofte.2025.104324>
7. Shamsul Hassan, **Devendra Chack** and Lorenzo Pavesi "Reconfigurable and Multifunction All Optical Logic Gates using Thermo-optic phase shifter for optical computing" *AIP Advances* 12, 055304 (03 May 2022) <https://doi.org/10.1063/5.0086185>
8. Rukmani Singh, **Devendra Chack**, and Vishnu Priye, "SNROW-based highly sensitive label-free surface biosensor for hepatitis B detection," *Appl. Opt.* 61, 6510-6517 (2022). DOI No.: <https://doi.org/10.1364/AO.463800>
9. **Devendra Chack**, Shamsul Hassan, and Mohd Qasim. "Broadband and low crosstalk silicon on-chip mode converter and demultiplexer for mode division multiplexing." *Applied Optics* 59.12 (2020): 3652-3659. <https://doi.org/10.1364/AO.390085>
10. Shamsul Hassan, **Devendra Chack**, and Varad Mahajan. "High extinction ratio and low loss polarization beam splitter based on multimode interference for PICs." *Applied Optics* 59.11 (2020): 3369-3375. <https://doi.org/10.1364/AO.387418>
11. **Devendra Chack**, Shamsul Hassan and Amitesh Kumar (2021) "Broadband and Mode insensitive MMI based mode power splitter for MDM" *Laser Physics (IOP)* **31** 126205 <https://iopscience.iop.org/article/10.1088/1555-6611/ac312c>

12. Shamsul Hassan, and **Devendra Chack**. "Design and analysis of polarization independent MMI based power splitter for PICs" *Microelectronics Journal* 104 (2020): 104887.
13. **Devendra Chack**, and Shamsul Hassan. "Design and experimental analysis of multimode interference-based optical splitter for on-chip optical interconnects." *Optical Engineering* 59.10 (2020): 105102.
14. Rukmani Singh, Vishnu priye and **Devendra Chack**, "Highly sensitive refractive index based sensor for DNA hybridization using subwavelength grating waveguide" *IETE Technical Review* (2022)
15. Sunil Thool, **Devendra Chack**, Amitesh Kumar (2021) "Coherent Detection-Based Optical OFDM, 60 GHz Radio-over-Fiber Link Using Frequency Quadrupling, and Channel and Carrier Phase Estimation" *Front. Phys.* 9:749497
16. **Devendra Chack**, V. Kumar, S. K. Raghuwanshi and Dev P Singh "Design and analysis of O-S-C triple band wavelength division demultiplexer using cascaded MMI couplers" *Optics Communications*, Volume 382, pp. 324–331, (2017)
17. **Devendra Chack**, V. Kumar and S. K. Raghuwanshi, Design and performance analysis of InP/InGaAsP-MMI based 1310/1550-nm wavelength division demultiplexer with tapered waveguide geometry, *Opto-Electronics Review*, Volume 23, Issue 4, pp. 271–277, (2015),

Conferences

1. R. R. Kumar, R. Guchhait, and **Devendra Chack**, "Tilted Subwavelength Grating Assisted Directional Coupler Based WDM," in Advanced Photonics Congress (IPR, Networks, NOMA, SOLITH, SPPCom) , Technical Digest Series (Optica Publishing Group, 2025), paper JTU3A.5. <https://doi.org/10.1364/IPRSN.2025.JTU3A.5>
(Advanced Photonics Congress, 13–17 July 2025, Marseille, France)
2. D. Maurya, **Devendra Chack**, and R. R. Kumar, "Highly efficient and compact non-uniform waveguide grating antenna for off-chip coupling," in Advanced Photonics Congress (IPR, Networks, NOMA, SOLITH, SPPCom) , Technical Digest Series (Optica Publishing Group, 2025), paper JTU3A.6. <https://doi.org/10.1364/IPRSN.2025.JTU3A.6>
(Advanced Photonics Congress, 13–17 July 2025, Marseille, France)
3. **Devendra Chack**, Shamsul Hassan, and Abhishek Kumar "Design and analysis of polarization beam splitter based on cascaded MMI on SOI", Proc. SPIE 11283, Integrated Optics: Devices, Materials, and Technologies XXIV, 1128320 (25 February 2020); <https://doi.org/10.1117/12.2544405>
Photonics West OPTO 2020 (SPIE, the international society for optics and photonics), at **San Francisco, USA**)
4. S. Hassan and **Devendra Chack**, "MZI based Silicon photonic circuits for arbitrary power splitting application", *JSAP-OSA Joint Symposia 2018*, paper 21p_211B_8. at Nagoya Japan 18–21 September 2018.

5. S. Hassan and **Devendra Chack**, "Design and performance analysis of MMI based all optical logic gates on SOI substrate," *2018 3rd International Conference on Microwave and Photonics (ICMAP)*, Dhanbad, 2018, pp. 1-2.
6. S. K. Raghuwanshi, V. Kumar, **Devendra Chack**, and R.R. Pandey, "Dispersion study of even mode thin planar slab dielectric waveguide without computing $\frac{d^2\beta}{dk^2}$ numerically" *Procedia Technology*, Volume 1, pp 286–290, (2012).
7. **Devendra Chack**, V. Kumar and D. Singh. "Performance Analysis of 1310/1490 nm Demultiplexer based on Multimode Interference Coupler for PON", In *Proceedings of the 4th International Conference on Photonics, Optics and Laser Technology* ISBN 978-989-758-174-8, pp 223-226 (2016), Rome, Italy
8. **Devendra Chack**, S. K. Raghuwanshi, V. Kumar and N. Agrawal, "Analyzing the Optimum Parameter of an 1×2 MMI Splitter" , *IEEE-International Conference on Communication Systems and Network Technologies, (CSNT-13)*, April 6-8, pp 149-151 (2013), Gwalior , India.
9. **Devendra Chack**, S. K. Raghuwanshi, V. Kumar and N. Agrawal, "Field Propagation Study of Y-Branch Assisted by MMI Coupler" *Proceedings of 3rd World Conference on Information Technology (WCIT-2012)*, 14-16 November 2012 pp 1795-1800 (2013), at University of Barcelona, Barcelona, Spain
10. **Devendra Chack**, S. K. Raghuwanshi and V. Kumar "Pulse Propagation Study of 1×4 Multibranch Optical Waveguide Using 3-Y Branch Optical Waveguide" *Proceedings of 3rd World Conference on Information Technology (WCIT-2012)*, 14-16 November 2012, pp 1790-1794 (2013), at University of Barcelona, Barcelona, Spain.

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