

# Bijoy Krishna Das

Professor  
Department of Electrical Engineering  
Indian Institute of Technology Madras  
Chennai - 600 036, India

Phone: +91 44 2257 4459/5495  
Email: [bkdas@ee.iitm.ac.in](mailto:bkdas@ee.iitm.ac.in), [bkdas@iitm.ac.in](mailto:bkdas@iitm.ac.in)  
Homepage: <http://www.ee.iitm.ac.in/mems/iolab/>

---

## Education

Ph.D./Dr.rer.nat. in Integrated Optics / Applied Physics: University of Paderborn, Germany, 2003.

## Research Interests

### **Integrated Silicon Photonics Devices and Circuits**

Optical Interconnect and Quantum Optic Applications  
Integrated RF Photonics Signal Processing  
Lab-On-Chip Biomedical Applications

## Employment Details

- 1. Dept. of Electrical Engineering, IIT Madras, India**  
Professor : March 2018 - Till Date  
Associate Professor : June 2010 - March 2018  
Assistant Professor : August 2006– May 2010
- 2. Dept. of Applied Physics, University of Paderborn, Germany**  
Postdoctoral Research Fellow : January 2005– July 2006
- 3. Center for Optical Technologies, Lehigh University, USA**  
Postdoctoral Research Fellow : January 2004– August 2004
- 4. Graduate School of Engineering, Osaka University, Japan**  
Postdoctoral Research Fellow : July 2003–December 2003
- 5. Department of Applied Physics, University of Paderborn, Germany**  
Wiss. Mitarbeiter / PhD Scholar : January 1999– June 2003
- 6. Dept. of E & ECE, IIT Kharagpur, India**  
Project Associate/PhD Scholar : April 1996 – December 1998

## Other Major Institute/University Visited Abroad

1. APRI, KAIST and ETRI, South Korea: June 2016 (Hosts: Dr. Yeung Lak Lee / Dr. Jong-Moo Lee).
2. Nonlinear Optics Group, ETH, Switzerland : May 2002 (Host: Prof. P. Guenter).
3. Laboratoire Aime Cotton, CNRS, Orsay, France : July 2005 (Hosts: Prof. F. Bretenakar / Dr. I. Lorgere).
4. Silicon Photonics Group, Ghent University / IMEC, Belgium : May 2006 (Hosts: Prof. Wim Bogaerts / Prof. Roel Baets).

## Courses Introduced and/or Teaching at IIT Madras

1. Basic Electrical Engineering (UG Core Course for Non-EE Students / 2 times)
2. Electrical and Magnetic Circuits (UG Core Course / 2 times)
3. EM Fields (UG Core Course / 2 times)
4. Solid State Devices (UG Core Course / 1 time)
5. Engineering Electromagnetics (UG Core Course / 1 time)
6. Introduction to Photonics (PG Core Course / 1 time)
7. Wave Propagation in Communications (PG Core Course / 1 time)
8. Electronic and Photonic Nanoscale Devices (UG/PG Elective Course / 7 times)
9. Integrated Optoelectronics Devices and Circuits (UG/PG Elective Course / 10 Times)
10. GIAN Course (Global Initiative of Academic Networks) on "Advanced Group-IV Semiconductor Electronic and Optoelectronic Devices" (Offered during 15 February - 22 February 2017 / Jointly with Prof. Anil Prabhakar, IIT Madras and Dr. Inga Anita Fischer, University of Stuttgart, Germany)
11. GIAN Course (Global Initiative of Academic Networks) on "Silicon Photonics: Linear, Nonlinear, and Quantum Integrated Optical Devices and Circuits" (Offered during 19 March - 1 April 2017 / Jointly with Prof. Shayan Mookherjea, University of California, USA).

## Establishment of Research Labs / Facilities at IIT Madras

1. Integrated Optoelectronics Labs: State-of-the-art facilities for Silicon Photonics device design, fabrication and characterizations (First of its kind in India).
2. Centre for NEMS and Nanophotonics (CNNP, IIT Madras): One of the top three Nanotechnology Centres in the country, funded by Ministry of Electronics and Information Technology (MeitY), Govt. of India (Serving as one of the core and founding faculty members)

## Additional Responsibilities at IIT Madras

1. Coordinator for Department Exams (since 2010)
2. Nodal Officer for Visvesvaraya PhD Scheme (since 2014)
3. Coordinator for Industrial Lecture Series for UG Students (Odd Semester, 2013)
4. Sponsorship Chair and Organizing Member of the International Conference on Fiber Optics and Photonics (Photonics - 2012)
5. Participating Faculty Member for the "Fund for Improvement of S&T Infrastructure" in the Department of EE, IIT Madras, Sponsored by Department of Science and Technology, Govt. of India (Since 2009).

## Other Professional Assignments and Memberships

1. **Elected Executive Council Member:** Optical Society of India (1st April 2018 - 31st March 2019)
2. **Associate Editor:** Optical Engineering, SPIE (Since January 2014)
3. **Reviewers:** Scientific Reports (Nature), Journal of Lightwave Technology (IEEE/OSA), Photonics Technology Letters (IEEE), Optics Letters (OSA), Applied Optics (OSA), Optics Communications (Elsevier), Journal of Nanophotonics (SPIE), Journal Optics (OSI).
4. **Members:** IEEE Photonics Society, IEEE Electron Device Society, Optical Society of America, Optical Society of India
5. **Guest Faculty:** IIT Tirupati, Teaching Full-Semester UG Course - Solid State Devices (During August - November 2017)

## Sponsored Projects (Principal Investigator) : Completed / In-Progress

1. *Experimental demonstration and modelling of SOI based p-i-n/p-n phase-shifters and variable optical attenuators with submicron waveguides*, Sponsored by SERB-DST, Govt. of India, Initiated in January 2016 (Project Value - Rs. 60,70,000/-).
2. *Silicon Nanophotonics - Technology development, novel device design, fabrication and characterization*, Sponsored by DRDO, Govt. of India, Initiated in August 2012 (Project Value: Rs. 331,00,000/-).
3. *Development of integrated optical single channel add-drop multiplexer (SCADM) in SOI platform for fiber optic communication systems*, Sponsored by DIT, Govt. of India, 2008-2012 (Project Value: Rs.50,00,000/-).
4. *Development of passive integrated photonic components in SOI platform*, Sponsored by DST, Govt. of India, 2008-2012 (Project Value: Rs. 45,00,000/-).
5. *SOI integrated optical chip for sensor applications*, Sponsored by RCI/DRDO, Govt. of India, 2009-2012 (Project Value: Rs. 10,00,000/-).
6. *Fabrication of Integrated Optical Polarizer for Fiber Optic Gyro Applications*, Sponsored by RCI/DRDO, Govt. of India, 2007-2010 (Project Value: Rs. 10,00,000/-).
7. *Development of Photonic Integrated Circuit Technology on SOI Platform*, Sponsored by IIT Madras, 2007-2010 (Project Value: Rs. 5,00,000/-).

## Other Important Sponsored Projects/Schemes: Completed / In-Progress

1. *Centre for NEMS and Nanophotonics - Core Faculty Member, Funded by DeitY, Govt. of India, Initiated in March 2011 (Project Value: Rs. 50,00,00,000/-)*
2. *Visvesvaraya PhD Scheme - IITM Nodal Officer/Principal Investigator, Funded by DeitY/Media Lab Asia, Govt. of India, Initiated in March 2015 (Project Value: Rs. 2,50,00,000/-)*

## PhD Guidance : Completed / In-Progress

1. **Shantanu Pal** (Solo Guidance)  
Thesis Title: *Photorefractive Damage Resistance in Periodically Poled Lithium Niobate (PPLN) waveguides with Ridge Geometry*; Graduation Date: *7th September 2016*
2. **Sujith Chandran** (Solo Guidance)  
Thesis Title: *Integrated Optical Microring Resonators in SOI for Wide-Range Refractive Index Sensing*  
Graduation Date: *27th April 2017*
3. **Parimal Sah** (Solo Guidance)  
Thesis Title: *Integrated Photonics Filters with Distributed Bragg Reflectors in Silicon-on-Insulator*  
Graduation Date : *5th April 2018*
4. **Ramesh K. Gupta** (Solo Guidance)  
Joining Date: *January 2015 (Promoted from M.Tech. Program)*  
Second Seminar Delivered: *24th October 2017*
5. **Riddhi Nandi** (Solo Guidance)  
Joining Date: *July 2013*  
First Seminar Delivered: *12th June 2017*
6. **Sumi R** (Joint guidance with Prof. Nandita DasGupta, EE)  
Joining Date: *January 2014*  
First Seminar Delivered: *27th July 2017*
7. **Arnab Goswami** (Solo Guidance)  
Joining Date: *August 2017*

## MS (By Research) Guidance : Completed / In-Progress

1. **Meenatchi Sundaram**: Thesis Stage (Solo Guidance).
2. **Sreevatsa Kurudi**: Graduation Year 2017 (Solo Guidance).
3. **Saket Kaushal**: Graduation Year 2016 (Solo Guidance).
4. **Sidharth Ravindran**: Graduation Year 2015 (Solo Guidance).
5. **Pavadai Sakthivel**: Graduation Year 2015 (Joint guidance with Prof. Nandita DasGupta).
6. **Rashmi Joshi**: Graduation Year 2014 (Joint guidance with Prof. Nandita DasGupta).
7. **Harish Sasikumar**: Graduation Year 2013 (Joint guidance with Dr. Deepa Venkitesh).
8. **Uppu Karthik**: Graduation Year 2013 (Solo Guidance).

9. **Gaurang R. Bhat:** Graduation Year 2012 (Solo Guidance).
10. **Solomon Krubhakar:** Graduation Year 2012 (Solo Guidance).
11. **John P. George:** Graduation Year 2011 (Solo Guidance).
12. **Rupesh Navalakhe:** Graduation Year 2009 (Joint guidance with Prof. Nandita DasGupta).

## Dual-Degree/MTech Project Guidance: Completed / In-Progress

1. B. Meena (Graduation Year: 2018)
2. Sooraj M.S. (Graduation Year: 2017)
3. Mandar Belambe (Graduation Year: 2015)
4. Vivek P.S. (Graduation Year: 2014)
5. Chaitanya M. (Graduation Year: 2013)
6. Dadavali Dudekula (Graduation Year: 2013)
7. Sreesha N.R (Graduation Year: 2013)
8. Rajat Sharma (Graduation Year: 2012)
9. Kumar Rajneesh (Graduation Year: 2010)
10. Y. Krishna Karthik (Graduation Year: 2010)
11. A. Manjusha (Graduation Year: 2010)
12. Srivatsha P. Bhat (Graduation Year: 2010)
13. Reddykumar S.S. (Graduation Year: 2008)
14. N. Dharmiah (Graduation Year: 2008)
15. Umesh Sharma (Graduation Year: 2008)
16. Pavan Kumar Kambham (Graduation Year: 2008)

## Publications

### *Patents*

1. P. Sah and **B.K. Das**, "Design and implementation of integrated optical razor edge filter in silicon-on-insulator", PCT App. No. PCT/IN2017/050403
2. S. Chandran, S.M. Sundaram, and **B.K. Das**, "Method and apparatus for modifying dimensions of a waveguide", US Patent App. 15/218,300

*Journal Articles (Peer Reviewed)*

1. Parimal Sah and **Bijoy Krishna Das**, "Photonic bandpass filter characteristics of multimode SOI waveguides integrated with submicron gratings", *Applied Optics*, Vol. 57, No. 9, pp. 2277-2281, 2018 (5 Pages).
2. Ramesh K. Gupta, Sujith Chandran and **Bijoy Krishna Das**, "Wavelength Independent Directional Couplers for Integrated Silicon Photonics", *IEEE/OSA Journal of Lightwave Technology*, Vol. 35, No. 22, pp. 4916-4923, November 15, 2017 (8 Pages).
3. Sujith Chandran, Meenatchi Sundaram, Sreevatsa Kurudi and **Bijoy Krishna Das**, "Design and fabrication of surface trimmed silicon-on-insulator waveguide with adiabatic spot-size converters" *Applied Optics*, vol. 56, No. 6, pp. 1708-1716, 2017 (9 pages).
4. Ramesh K. Gupta and **Bijoy K. Das**, "Multi-input and multi-output SOI (MIMO-SOI) platform for silicon photonics", *CSI Transactions on ICT*, vol. 5, No. 2, pp. 189-193, June 2017 (5 pages).
5. S. Chandran, Ramesh K. Gupta, and **B.K. Das**, "Dispersion enhanced critically coupled ring resonator for wide-range refractive index sensing", *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 23, No. 2, pp. 424-432, March/April 2017 (9 Pages).
6. P. Sah and **B.K. Das**, "Integrated Optical Rectangular-Edge Filter Devices in SOI", *IEEE/OSA Journal of Lightwave Technology*, vol. 35, No. 2, pp. 128-135, January 2017 (8 pages).
7. **B.K. Das**, N DasGupta, S. Chandran, et al., "Silicon Photonics Technology: Ten Years of Research at IIT Madras", *Asian Journal of Physics*, vol. 25, No. 7, September 2016 (21 Pages).
8. S. Kaushal and **B.K. Das**, "Modelling and experimental investigation of an integrated optical micro-heater in SOI", *Applied Optics (OSA)*, vol. 55, No. 11, pp. 2837-2842, April 2016 (6 Pages).
9. S. Pal, **B.K. Das** and W. Sohler, "Photorefractive damage resistance in Ti:PPLN waveguide with ridge geometry", *Applied Physics B : Lasers and Optics (Springer)*, vol. 120, pp. 737-749, August 2015 (13 Pages).
10. S. Chandran and **B.K. Das**, "Surface trimming of silicon photonics devices using controlled reactive ion etching chemistry", *Photonics and Nanostructures : Fundamentals and Applications (Elsevier)*, vol. 15, pp. 32-40, June 2015 (9 Pages).
11. R. Sidharth and **B.K. Das**, "Semi-analytical model of arrayed waveguide grating in SOI using Gaussian beam approximation", *Applied Optics (OSA)*, vol. 54, pp. 2158-2163, March 2015 (6 Pages).
12. G.R. Bhatt, and **B.K. Das**, "Improvement of polarization extinction in silicon waveguide devices," *Opt. Commun. (Elsevier)*, vol. 285, no. 8, pp. 2067-2070, April 2012 (4 Pages).
13. G.R. Bhatt, R. Sharma, U. Karthik, and **B.K. Das**, "Dispersion-Free SOI Interleaver for DWDM Applications," *IEEE/OSA Journal of Lightwave Technology*, Vol. 30, no. 1, pp. 140-146, January 2012 (7 Pages).
14. R.K. Navalakhe, N. DasGupta, and **B.K. Das**, "Fabrication and Characterization of Straight and Compact S-bend Optical Waveguides on a Silicon-on-Insulator Platform," *Applied Optics*, vol. 48, no. 31, pp. G125-G130, October 2009 (6 Pages).
15. V. Croztier, **B.K. Das**, G. Baili, G. Gorzu, F. Bretenaker, J.L. Gouet, I. Lorgere, and W. Sohler, "Highly coherent electronically tunable waveguide extended cavity diode laser", *IEEE Photon Technol. Lett.*, 18, 1527-1529, 2006 (3 Pages).

16. T. Nosaka, **B.K. Das**, M. Fujimura, and T. Suhara, "Fabrication and characterization of cross-polarized twin photon generation device using quasi phase matched Ti:LiNbO<sub>3</sub> waveguide", *IEEE Photon Technol. Lett.*, 18, 124-126, 2006 (3 Pages).
17. **B.K. Das**, W. Sohler, and V. Dierolf, "Internal fluorescence induced refreshment of thermally fixed photorefractive grating in Ti:Fe:Er:LiNbO<sub>3</sub> for stable laser emission", *Electronics Lett.* (IEE), 41, 646-647, 2005 (2 Pages).
18. W. Sohler, **B.K. Das**, D. Dey, S. Reza, H. Suche, and R. Ricken, "Erbium-doped lithium niobate waveguide lasers", *IEICE Trans. Electron.* (Invited Paper), E88-C, 990-997, (2005) (8 Pages).
19. **B.K. Das**, R. Ricken, V. Quiring, H. Suche and W. Sohler, "DFB-DBR coupled cavity laser in Ti:Fe:Er:LiNbO<sub>3</sub>", *Opt. Lett.* (OSA), 29, 165-167, 2004 (3 Pages).
20. **B.K. Das**, R. Ricken and W. Sohler, "Integrated optical DFB-laser/amplifier with Ti:Fe:Er:LiNbO<sub>3</sub> waveguide", *Appl. Phys. Lett.* (AIP), 82, 1515-1517, 2003 (3 Pages).
21. **B.K. Das**, H. Suche and W. Sohler, "Single-frequency Ti:Er:LiNbO<sub>3</sub> distributed Bragg reflector waveguide laser with thermally fixed photorefractive cavity", *Appl. Phys. B* (Springer), 73, 439-442, 2001 (4 Pages).
22. **B.K. Das**, KGA Kamal Dev, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Simulation of gain characteristics of erbium-doped Ti-indiffused lithium niobate waveguide amplifier", *Journal of Optics* (OSI/Springer), 27, 33-44, 1998 (12 Pages).

#### *Proceeding Articles (Post Conference Publications)*

1. Riddhi Nandi, Sreevatsa Kurudi and Bijoy Krishna Das, "Diffusion doped p-i-n/p-n diodes for scalable silicon photonics devices", *Proc. SPIE 10249*, Integrated Photonics: Materials, Devices, and Applications IV, 102490Q, May 30, 2017 (12 pages).
2. U. Karthik and **B.K. Das**, "Polarization-independent and dispersion-free integrated optical MZI in SOI substrate for DWDM applications" *Proc. SPIE*, 8629, Silicon Photonics VIII, 862910, March 2013 (11 Pages).
3. S. Harish, D. Venkitesh and **B.K. Das**, "Highly Efficient DBR in Silicon Waveguides with Eleventh Order Diffraction," *Proc. SPIE*, pp. 86290H–86290H, March 2013 (7 Pages).
4. I.S. Krubhakar, R. Narendran, and **B.K. Das**, "Design and fabrication of integrated optical 1x8 power splitter in SOI substrate using large cross-section single-mode waveguides," *Proc. SPIE*, Vol. 8173, 81730C, 2011 (6 Pages).
5. S. Pal, and **B.K. Das**, "Fabrication of ridge waveguide in X-cut LiNbO<sub>3</sub> for nonlinear optic applications," *Proc. SPIE*, 8173, 81730W, 2011 (6 Pages).
6. G.R. Bhatt, and **B.K. Das**, "Demonstration of ITU channel interleaver in SOI with large cross section single mode waveguides," *Proc. SPIE* 8069, 806904, 2011 (6 Pages).
7. J.P. George, N. Dasgupta, and **B.K. Das**, "Compact integrated optical directional coupler with large cross section silicon waveguides," *Proc. SPIE*, 7719, 77191X, 2010 (8 Pages).
8. **B.K. Das**, C. Becker, T. Oesselke, R. Ricken, V. Quiring, H. Suche and W. Sohler, "Integrated optical DBR- and DFB-lasers in Er:LiNbO<sub>3</sub> with photorefractive gratings", *Proc. SPIE* (Invited Paper), vol. 4944, pp. 41-52, 2002 (12 Pages).

*International Conferences (Invited)*

1. **B.K. Das**, "Thermo-Optically Tunable Silicon Photonics Devices", ICMAP-2017, 9-11 February 2018, IIT Dhanbad, India (**Invited**).
2. **B.K. Das**, "Silicon Photonics Devices with Ultra-Broad Optical Bandwidth", IEEE WRAP-2017, 18-19 December 2017, Hyderabad, India (**Invited**).
3. **B.K. Das**, "Silicon Photonics: Technology and Applications", ICAOP-2017 (41st OSI), 23-26 November 2017, Hisar, India (**Invited**).
4. **B.K. Das**, R.K. Gupta, P. Sah, and S. Chandran, "Novel Wavelength Filter Devices in SOI for Optical Interconnects", 9th International Conference on Materials for Advanced Technologies (ICMAT-2017), 18-23 June 2017, Suntec Singapore (**Invited**).
5. **B.K. Das**, S. Chandran, P. Sah, and R.K. Gupta, "Novel Wavelength Filter Devices in SOI for Sensing Applications", 13th International Conference on Fiber Optics and Photonics (Photonics-2016), 4-8 December 2016, Kanpur, India (**Invited**).
6. **B.K. Das**, "Ten Years of Silicon Photonics Research at IIT Madras", International Conference on Light and Light based Technologies (ICLLT - 2016), 26-28 November 2016, Tezpur, India (**Invited**).
7. **B.K. Das**, "MIMO Platform for Silicon Photonics", 2nd International Conference on Emerging Technologies : Micro to Nano (ETMN 2015), 24-15 October 2015, Jaipur, India (**Invited Talk**).
8. **B.K. Das**, "Silicon Photonics for High-Speed Optical Interconnects", 2nd URSI Regional Conference on Radio Science (URSI-RCRS 2015), 16-19 Nov. 2015, New Delhi, India (**Invited General Talk II**).
9. **B.K. Das**, "Compact Wavelength-Selective Switch Circuit for Integrated Optical Interconnect", 12th International Conference on Fibre Optics and Photonics, Kharagpur, India , 13-16 December 2014 (**Invited Talk**).
10. **B.K. Das**, S. Chandran, R. Sidharth, S. Kaushal, and P. Sah, "Nanoscale Tolerance for Silicon Optical Interconnect Devices", National Conference on Nanoscience and Nanotechnology (NSNT - 2014), 18-19 September 2014, CRNN, University of Calcutta, Kolkata (**Invited Talk**).
11. **B.K. Das**, S. Chandran and S. Kaushal, "Optical Interconnect devices with scalable waveguide cross-sections in SOI platform," ICOL-2014, Dehradun, India, 5-8 March 2014 (**Invited Talk**).
12. Sujith Chandran, Saket Kaushal and **B.K. Das**, "Monolithic integration of micron to submicron waveguides with 2D mode-size converters in SOI platform", SPIE Photonics West 2014, San Francisco, CA, USA, 1-6 February 2014 (**Invited Talk**).
13. **B.K. Das**, S. Chandran and U. Karthik, "Silicon Photonics and Optical interconnect Technology", ICOE - International Conference on Optical Engineering 2012,VTU, Belgaum, India, July 26-28,2012 (**Invited Talk**).
14. **B.K. Das**, S. Chandran and U. Karthik, "Research Advances in SOI Based Waveguide Sensors", IConTOP - Trends in Optics and Photonics II, Kolkatta, India, 7-9 Dec, 2011 (**Invited Talk**).
15. **B.K. Das**, "Advances in Silicon Photonics Research: The World Scenario and IIT Madras," ICCCD, Kharagpur, India, December 10 - 12, 2010 (**Invited Talk**).
16. **B.K. Das**, Sujith C., G.R. Bhatt, U.Karthik and R. Sharma, "Silicon Photonics in SOI Platform: Problems with Waveguide dispersion and Birefringence Effects", FOP 11 - Frontiers in Optics and Photonics, XXXVI OSI Symposium, New Delhi, India, 3-5 Dec, 2011 (**Invited Talk**).

17. W. Sohler, **B.K. Das**, D. Dey, S. Reza, H. Suche, and R. Ricken, "Recent advances of erbium-doped lithium niobate waveguide lasers", SPIE-COO'05, Warsaw, Poland, August 28 - September 2, 2005 (**Invited Talk**).
18. W. Sohler, **B.K. Das**, S. Reza, H. Suche, R. Ricken, "Recent progress in integrated rare-earth doped LiNbO<sub>3</sub> waveguide lasers", OECC'04, Yokohama, Japan, 12-16 July, 2004 (**Invited Talk**).
19. W. Sohler, **B.K. Das**, S. Reza, H. Suche, R. Ricken, "Er-doped LiNbO<sub>3</sub> waveguide lasers: Recent Progress", PHOTONICS'04, Cochin, India, 9-11 December 2004 (**Invited Talk**).
20. **B.K. Das**, C. Becker, T. Oesselke, R. Ricken, V. Quiring, H. Suche and W. Sohler, "Integrated optical DBR- and DFB-lasers in Er:LiNbO<sub>3</sub> with photorefractive gratings", SPIE-PHOTOFAB'02, Paper No. 4944-05, Brugge, Belgium, 28 Oct. - 1 Nov., 2002 (**Invited Talk**).

### *International Conferences (Contributed)*

1. Sumi R, R.K. Gupta, N. DasGupta, and **B.K. Das**, "Integrated Optical Ultra-Broadband Add-Drop Filter in Silicon-On-Insulator Platform", *Accepted for Oral Presentation*, OFC - 2018, 11-15 March 2018, San Diego, CA, USA.
2. R.K. Gupta, S. Chandran, and **B.K. Das**, "Integrated Silicon Photonics Directional Couplers for WDM Applications", *Oral Presentation*, ICMAP - 2018, 9-11 February 2018, IIT Dhanbad, India.
3. R. Nandi, S. Kurudi, and **B.K. Das**, "Polarization Dependent Electro-Optic Effect in SOI Waveguides with Laterally Diffused P-N Junction", *Oral Presentation*, ICMAP - 2018, 9-11 February 2018, IIT Dhanbad, India.
4. S.M. Sundaram, S. Chandran and **B.K. Das**, "Loss Estimation of Adiabatically Tapered Silicon Waveguides", *Oral Presentation*, ICAOP-2017 (41st OSI), 23-26 November 2017, Hisar, India.
5. P. Sah and **B.K. Das**, "Integrated Optical  $\lambda/4$  Phase-Shifted High-Q DBR Cavity in Silicon-On-Insulator", *Oral Presentation*, ICAOP-2017 (41st OSI), 23-26 November 2017, Hisar, India.
6. Sumi R, N. DasGupta, and B.K. Das, "Integrated optical Mach-Zehnder interferometer with a sensing arm of sub-wavelength grating waveguide in SOI", *Poster Presentation*, IEEE Sensors, 29th Oct-1st Nov, 2017, Glasgow, Scotland, UK.
7. Riddhi Nandi, Sreevatsa Kurudi and **Bijoy Krishna Das**, "Diffusion doped p-i-n/p-n diodes for scalable silicon photonics devices", *Poster Presentation* SPIE Microtechnologies, Barcelona, Spain, 8 - 10 May 2017.
8. S. Kurudi and **B.K. Das**, " Design and Demonstration of Polarization Independent Variable Optical Attenuator with SOI Waveguides", *Oral Presentation*, 13th International Conference on Fiber Optics and Photonics (PHOTONICS 2016), 4-8 December 2016, Kanpur, India.
9. Sumi, R., N. DasGupta, and **B.K. Das**, "Demonstration of Integrated Optical 2D Photonic Crystal Waveguides in SOI for Sensing Applications", *Accepted for Oral Presentation*, 13th International Conference on Fiber Optics and Photonics (PHOTONICS 2016), 4-8 December 2016, Kanpur, India.
10. Saket Kaushal, **B.K. Das**, "Design of maximally flat delay lines using apodized CROW structure in SOI", 12th International Conference on Fibre Optics and Photonics, Kharagpur, India , 13-16 December 2014 (Paper- T4B.3).
11. Sidharth Ravindran, **B.K. Das**, "Modeling and Phase Error Analysis of AWG in SOI using Gaussian Beam Approximation", 12th International Conference on Fibre Optics and Photonics, Kharagpur, India , 13-16 December 2014 (Paper- T3A.67).

12. R. Joshi, **B.K. Das**, N.D.Gupta, "Design of 2D Photonic crystals for integrated optical slow light applications", IWPSD-2013, Noida, India, Dec 2013.
13. I Seethalakshmi, R.Joshi, **B.K. Das**, N. DasGupta, "Inductively coupled plasma etching of GaAs with high anisotropy for photonics applications", IWPSD-2013, Noida, India, Dec 2013.
14. Sidharth Ravindran and **B.K. Das**, "Design and fabrication of 8-channel AWGs with 2- $\mu$ m-SOI for optical interconnects", SPIE Photonics West 2014, San Francisco, CA, USA, 1-6 February 2014
15. P. Sakthivel, N. DasGupta, and **B.K. Das**, "Simulation and experimental studies of diffusion doped p-i-n structures for silicon photonics", SPIE Photonics West 2013, San Francisco, CA, USA, 2-7 February 2013 (Paper 8629-33).
16. U. Karthik and **B.K. Das**, "Polarization-independent and dispersion-free integrated optical MZI in SOI substrate for DWDM applications", SPIE Photonics West 2013, San Francisco, CA, USA, 2-7 February 2013 (Paper 8629-35).
17. H. Sasikumar, D. Venkitesh, and **B.K. Das**, "Highly efficient DBR in silicon waveguides with eleventh order diffraction", SPIE Photonics West 2013, San Francisco, CA, USA, 2-7 February 2013 (Paper 8629-16).
18. S. Chandran, **B.K. Das**, "Tapering and Size Reduction of Single-mode Silicon Waveguides by mask-less RIE", OECC 2012 - OptoElectronics Communication Conference, Bexco, Busan Korea, July 02-06, 2012.
19. G.R. Bhatt, and **B.K. Das**, "Demonstration of ITU channel interleaver in SOI with large cross section single mode waveguides", SPIE Microtechnologies, Prague, Czech Republic, April 18-20, 2011.
20. G.R. Bhatt, P.V. Vivek, and **B.K. Das**, "Attenuation of TM polarized light in metal coated SOI rib waveguides due to plasmonic absorption," International Conference on Fiber Optics and Photonics (PHOTONICS 2010), Guwahati, India, December 12 - 15, 2010.
21. I.S. Krubhakar, R. Narendran, Y.K. Karthik, and **B.K. Das**, "Fabrication of 1X8 power splitter in SOI substrate with optimized design parameters," International Conference on Fiber Optics and Photonics (PHOTONICS 2010), Guwahati, India, December 12 - 15, 2010.
22. S. Pal, and **B.K. Das**, "Fabrication of ridge waveguide in X-cut lithium niobate for nonlinear optic applications," International Conference on Fiber Optics and Photonics (PHOTONICS 2010), Guwahati, India, December 12 - 15, 2010.
23. John P. George, N. Dasgupta, and **B.K. Das**, "Compact Integrated Optical Directional Coupler with Large Cross Section Silicon Waveguides," Photonics Europe (SPIE), Brussels, Belgium, April 12 - 16, 2010.
24. J. P. George, A. Manjusha, and **B.K. Das**, "Silicon Nitride ARC for SOI Integrated Optical Devices," IWPSD-2009 XVth International Workshop on Physics of Semiconductor Devices, New Delhi, India, December 15 - 19, 2009.
25. K. Rajneesh, S. Pal, and **B.K. Das**, "Fabrication and Characterization of Integrated Optical TE-Pass Polarizer in LiNbO<sub>3</sub>," International Conference on Optics and Photonics (ICOP-2009), Chandigarh, India, October 30 - November 1, 2009.
26. R. Navalakhe, N. Dasgupta, and **B.K. Das**, "Fabrication and Characterization of Single-Mode Optical Waveguide in Silicon-On-Insulator," International Conference on Fiber Optics and Photonics (PHOTONICS 2008), December 13 - 17, New Delhi, India, 2008.

27. S. Pal, A.K. Sahoo, and **B.K. Das**, "Experimental Studies on Swelling and Surface Roughness Dependent Guiding Properties of APE:LiNbO<sub>3</sub> Channel Waveguides," Photonics-2008: International Conference on Fiber Optics and Photonics (PHOTONICS 2008), New Delhi, India, December 13 - 17, 2008.
28. R. Navalakhe, N. Dasgupta, and **B.K. Das**, "Design of Low-loss Compact 90° Bend Optical Waveguide for Photonic Circuit Applications in SOI Platform," IEEE Region 10 Third International Conference on Industrial and Information Systems, Kharagpur, India, December 8 - 10, 2008.
29. V. Crozatier, G. Gorzu, G. Baili, F. Bretenaker, J.L. Gouet, I. Lorgere, **B.K. Das**, and W. Sohler, "Highly coherent electronically tunable waveguide extended cavity diode laser", CLEO'06, Long Beach, USA, 21-26 May 2006.
30. V. Crozatier, G. Gorzu, G. Baili, F. Bretenaker, J.L. Gouet, I. Lorgere, **B.K. Das**, and W. Sohler, "Waveguide extended cavity diode laser", JNOG'05, Chambéry, France, 8-10 November 2005.
31. T. Nosaka, **B.K. Das**, M. Fujimura, and T. Suhara, "Fabrication and characterization of cross-polarized twin photon generation device using quasi phase matched LiNbO<sub>3</sub> waveguide" CLEO-PR'05, Tokyo, Japan, 11-15 July, 2005.
32. **B.K. Das**, C. Sandmann, V. Dierolf, and W. Sohler, "Luminescence induced stabilization of thermally fixed photorefractive Bragg gratings in Ti:Fe:Er:LiNbO<sub>3</sub> waveguides", ICDIM'04, Riga, Latvia, 11-16 July, 2004.
33. H. Kintaka, **B.K. Das**, M. Fujimura, and T. Suhara, "Fabrication and preliminary experiments of Type II quasi-phase matched LiNbO<sub>3</sub> waveguide twin photon generation device" 51st Spring Meeting 2004 of The Japan Society of Applied Physics, Tokyo, Japan, 28-31 March, 2004.
34. **B.K. Das**, R. Ricken, V. Quiring, H. Suche and W. Sohler, "DFB-DBR coupled cavity laser in Ti:Fe:Er:LiNbO<sub>3</sub>", ECOC'02, Paper No. 11.2.2, Copenhagen, Denmark, 8-12 September, 2002.
35. **B.K. Das**, R. Ricken and W. Sohler, "Integrated optical DFB-laser with Ti:Fe:Er:LiNbO<sub>3</sub> waveguide", CLEO'02, Paper No. CPDB11, Long Beach, USA, 19-23 May, 2002 (**Post Deadline Paper**).
36. **B.K. Das**, H. Suche and W. Sohler, "Single-frequency DBR-laser in Er:Ti:LiNbO<sub>3</sub> channel waveguide using integrated photorefractive gratings resonator", ECIO'01, pp. 87-90, Paderborn, Germany, 4-6 April, 2001.
37. **B.K. Das**, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Influence of Dielectric Buffer Layer on Overlap Integral Factor for Lumped-Type Electrode Modulator/Switch", ICOL'98, Dehradun, India, 9-12 Dec., 1998.
38. **B.K. Das**, R. Chakraborty, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Design of High-Gain Integrated Optic Amplifier Using Erbium-Doped Titanium Indiffused Lithium Niobate Waveguides", CODEC'98, pp. 571-574, Calcutta, India, 1998.
39. B. Samanta, **B.K. Das**, R. Chakraborty, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Fabrication and characterization of erbium doped titanium indiffused lithium niobate waveguides for integrated optic amplifier", PHOTONICS'98, New Delhi, India, 14-17 Dec., 1998.
40. **B.K. Das**, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Modeling of titanium indiffused lithium niobate optical waveguide by variational method", PHOTONICS'98, New Delhi, India, 14-17 Dec., 1998.
41. **B.K. Das**, R. Chakraborty, P. Ganguly, J.C. Biswas and S.K. Lahiri, "Design of integrated optic modulator for erbium-doped titanium indiffused lithium niobate waveguide amplifiers", DPN'97, Kharagpur, India, 1997.

*National Level Workshops/Conferences*

1. Sumi R, P. Sah, and **B.K. Das**, "Integrated 1D Photonic Crystal Devices with SOI Waveguides", Symposium on Photonic Crystal: 30 Years of Photonic Crystals - the Indian Scenario, IIT Kanpur, 21-23 September 2017 (**Invited Talk**).
2. Sumi R, N. DasGupta, and B.K. Das, "Integrated Silicon Photonics Periodic Nanostructures for Sensing Applications", Symposium on Photonic Crystal: 30 Years of Photonic Crystals - the Indian Scenario, IIT Kanpur, 21-23 September 2017 (**Poster Presentation**).
3. **B.K. Das**, "Active Phase-Shifters for Silicon Photonics", Frontier in Light Matter Interaction (FiLMI - 2016), IIT Ropar, March 4-6, 2016 (**Invited Talk**).
4. **B.K. Das**, "Nanoscale Tolerance for Silicon Optical Interconnect Devices", TU9-IIT Mandi Collaborative Workshop on Emerging Semiconductor Technologies, 26-27 September 2014 (**Invited Talk**).
5. **B.K. Das**, "Optical Interconnect Devices in SOI Platform - Past, Present and The Future", PAOMP 2014, Bhubaneswar, 26-28 March, 2014 (**Invited Talk**).
6. **B.K. Das**, "Silicon Photonics: Monolithic Integration of Micron to Sub-micron Waveguide Devices", Focused Discussion Meeting on Metamaterials and Photonics Nanostructures, IIT Kanpur, India, 16 - 17 Aug, 2013 (**Invited Talk**).
7. **B.K. Das**, "Prospect of Silicon Photonics without CMOS Technology", Annual Photonics Workshop, CUSAT, Kochi, India, 27 - 28 Feb, 2012 (**Invited Talk**).
8. **B.K. Das**, "Integrated Optical Devices for Sensor Applications," Workshop on Applications of Lasers in Sensing and Measurements, Chennai, India, July 14 - 19, 2008 (**Invited Talk**).
9. **B.K. Das** and W. Sohler, "Integrated Optical Highly Coherent Light Sources with Photorefractive Gratings," Workshop on Physics and Technology of All Optical Communication Components and Devices, Kharagpur, India, October 11 - 16, 2007 (**Invited Talk**).

*Book (PhD Thesis)*

*Integrated Optical DBR and DFB Lasers in Er:LiNbO<sub>3</sub>*, Shaker Verlag, Germany, ISBN: 3-8322-1854-8, September 2003.

Last updated: May 3, 2018

<http://www.ee.iitm.ac.in/mems/iolab/>