

DEBASISH DATTA
Professor (retired), IIT Kharagpur

Academics:

- **Ph.D.**, Indian Institute of Technology, Kharagpur, 1987.
- **M.Tech.**, Indian Institute of Technology, Kharagpur, 1976.
- **B.Tech.** Institute of Radiophysics & Electronics, Calcutta University, 1973.

Research Areas: Optical Communication, Optical Networks, Quantum Communication and Cryptography.

Current Research: Elastic Optical Networks, Passive optical Networks, Optically-augmented Datacenters, Quantum Cryptography.

Employments Held in India:

- **Post-retirement engagements:** Professor Emeritus, School of Electronics Engg, KIIT Bhubaneswar, Visiting/Adjunct Professor (IIT Jodhpur, IIT Dhanbad, IIT Kharagpur, IIIT Kalyani, BIT Mesra and other private universities).
- **1981-2017:** Electronics & Electrical Communication Engg. (E&ECE) Dept., IIT Kharagpur - Professor (1999-2017), Associate Professor (1993-1999), Assistant Professor (1986-1993), Lecturer (1981-1986) – served as Head, E&ECE and G. S. Sanyal School of Telecommunications.
- **1980-1981:** Philips, Calcutta - Production Manager (1978-1980).
- **1978-1980:** Radar & Comm. Centre, IIT Kharagpur - Lecturer (1979-1980), Scientific Officer (1978-1979).
- **1976-1978:** Indian Telephone Industries, Bangalore - Assistant Executive Engineer.

Overseas Visiting Assignments (on leave from IIT Kharagpur):

- **University of Malaya**, Kuala Lumpur, Malaysia 2013-2014 (one year) – Research and teaching.
- **Chonbuk National University**, South Korea 2003-2004 (one year) – Research and teaching.
- **University of California, Davis, USA**, 1999 Summer and 1997-1998 (one year) – Research.
- **Stanford University**, Stanford, USA, 1992-1993 (one year) – Research and teaching (shared with host).

Services/Honors/Awards:

- **IEEE Editor**, IEEE Communications Tutorials and Surveys (2010-2013).
- **Elsevier Editor**, Journal of Optical Switching and Networks, Elsevier (2006-2010).
- **IEEE ANTS 2008 Best Paper Award:** Paper Title: “A Heuristic Approach for Designing Hybrid PONs Employing WDM and OCDMA with Asymmetric Traffic Distribution,” subsequently published in *Journal of Optical Switching and Networks*, Elsevier.
- **IEEE Guest Editor**, Special Issue of *IEEE Journal on Selected Areas in Communication on WDM-based Network Architectures*, January 2002.
- **Indo-US Science and Technology Fellowship:** Awarded to work as a Visiting Scientist on Coherent Optical Communications at Stanford University, USA, during July 1992 - June 1993.
- **J. of IERE, UK: Sir J. C. Bose Premium Award** from the Institution of Electronic and Radio Engineers (IERE, later merged with IEE/IET, UK), for the paper on the performance of optical receivers in presence of timing uncertainty, in *Journal of IERE*, Feb.1985.

Membership in Professional Bodies: Life Senior Member, IEEE, USA; Life Member, IE, India.

Professional Services for International/National Conferences: Member, International Advisory Committee, IEEE ANTS (Adv. Networking and Telecom. Systems) 2016; General Co-Chair, IEEE ANTS 2015; Technical Program Committee Co-Chair, IEEE ANTS 2012; Member, Advisory Committee, NCC (National Conf. on Comm.) 2012; Track Chair, IEEE ANTS 2009; Member, Steering Committee, Photonics 2008, 2010; Member, Advisory Committee, Conference on Computers and Devices for Communications (CODEC), 2006.

Book: D. Datta, *Optical Networks*, Oxford University Press, UK, 2021.

<https://global.oup.com/ukhe/product/optical-networks-9780198834229?cc=gb&lang=en&>

Some Selected Journal Publications:

1. S. Das and D. Datta, "Revisiting Packet-Switched WDM Rings for Metro Networks: A Comprehensive Cross-Layer Assessment, *IEEE/OSA J. of Lightwave Technology*, Accepted (early access version available in IEEE Xplore), 2023.
2. D. Adhikari, R. Datta and D. Datta, "Impact of BER in Fragmentation-aware Routing and Spectrum Assignment in Elastic Optical Networks," *Computer Networks*, Elsevier, vol. 172, May 2020.
3. C. Bhar, A. Mitra, G. Das and D. Datta, "Enhancing End-User Bandwidth using Content sharing over Optical Access Networks," *IEEE/OSA Journal of Optical Communications and Networking*, vol.9, issue 9, pp. 756-772, Sept. 2017.
4. A. Bhattacharya, K. Sinha, R. N. Ghosh, D. Datta and B. P. Sinha, "Non-Contiguous Channel Allocation for Multimedia Communication in Cognitive Radio Networks," *IEEE Trans. on Cognitive Communications and Networking*, vol.1, no.4, pp.420-434, Dec.2015.
5. C. Bhar, G. Das, A. Dixit, B. Lannoo, M. V. D. Wee, D. Colle, D. Datta, M. Pickavet and P. Demeester, "A Green Open Access Optical Distribution Network with Incremental Deployment Support," *IEEE/OSA J. of Lightwave Technology*, 2015, vol. 33, No. 19, pp. 4079-4092, October 2015.
6. I. Datta, D. Datta and P. Pande, "Design Methodology for Optical Interconnect Topologies in NoCs with BER and Transmit Power Constraints," *IEEE/OSA J. of Lightwave Technology*, Vol. 32, No.1, pp 163 – 175, January 2014.
7. A. Adhya and D. Datta, "Evaluation of Accumulated FWM Power atLightpathEnds in Wavelength-Routed Optical Networks," *IEEE/OSA J. of Optical Communications and Networking*, Vol. 4, Issue 4, pp. 314–325, April 2012.
8. K. Sinha, B. P. Sinha and D. Datta, "An Energy-Efficient Communication Scheme for Wireless Networks: A Redundant Radix-Based Approach," *IEEE Trans. on Wireless Comun.*, Vol.2, No.10, pp. 550-559, February 2011.
9. J. Ratnam, S. Chakraborti and D. Datta, "Impact of Transmission Impairments on Demultiplexed Channels in WDM PONs employing AWG-based Remote Nodes," *IEEE/OSA J. of Optical Communications and Networking*, Vol. 2, Issue 10, pp. 848-858, October 2010.
10. J. Zhang, L. S. Wang, K. Zhu, L. Song, D. Datta, Y. C. Kim and B. Mukherjee, "Optimized Routing for Fault Management in Optical Burst-Switched WDM Networks" Special Series on Optical Communications and Networking, *IEEE J. of Selected Areas in Communication*, Vol. 25, No.6, pp.111-120, August 2007.
11. D. Das, G. Dutta, and D. Datta, "Packet-Error Rate Based Power Budget for Multiple Access WDM Networks with Subcarrier Multiplexed Control Packets," *IEEE Photonics Technology Letters*, Vol. 12, pp. 359-361, March 2000.
12. B. Ramamurthy, D. Datta, H. Feng, J. P. Heritage, and B. Mukherjee, "Impact of Transmission Impairments on the Teletraffic Performance of Wavelength-Routed Optical Networks," *IEEE/OSA J. of Lightwave Technology*, Vol. 17, pp. 1713-1723, October 1999.
13. D. Datta and R. Gangopadhyay, "Performance Analysis of the Delay And Exclusive-OR Type Clock Recovery Circuit in An APD-Based Optical Receiver," *IEE Proceedings [Part-J]*, Vol. 138, pp. 21-32, February 1991.
14. D. Datta and R. Gangopadhyay, "Simulation Studies on Nonlinear Bit Synchronizers in APD-Based Optical Receivers," *IEEE Trans. on Communications*, Vol. COM-35, No. 9, pp. 909-917, September 1987.
15. R. Gangopadhyay, D. Datta and C. Chandrasekhar, "Performance of an optical receiver employing avalanche photodetector in the presence of timing uncertainty," *J. Institution of Electronics and Radio Engineers*, Vol. 55, pp. 61-66, February 1985.
16. D. Datta, "Quantum-Key Distribution using Decoy Pulses to Combat Photon-Number Splitting by Eavesdropper: An Event-by-Event Impairment Enumeration Approach for Performance Evaluation and Design," Cornell Arxiv: [arXiv preprint arXiv:2501.18394](https://arxiv.org/abs/2501.18394).