

Sant Sharan Pathak received his B.Tech and M.Tech Degrees for ITBHU (currently IIT BHU) in Electronics Engineering in 1976 and 1978 respectively. After receiving his Ph.D. Degree in 1984 in Digital Communications from IIT Delhi, he joined IIT Kharagpur as Lecturer in 1985 where he is currently a Professor associated with Department of Electronics and Electrical Communication Engineering. His area of research interest includes digital communication, adaptive signal processing, networking, security aspects and similar other subjects.

List of Recent Publications from August 2007 to Date

In Journals:

1. Praful D. Mankar, Goutam Das, S.S. Pathak, Abhilash B. Ghanore, "Semi-cooperative game theoretic framework for resource allocation in cognitive cellular networks," *Physical Communication*, Vol.27, pp 36-45, 2018
2. Praful D. Mankar, Goutam Das, and S. S. Pathak,, "Load-aware performance analysis of cell center/edge users in random HetNets," *IEEE Transactions on Vehicular Technology*, Vol.67, No.3, pp 2476-2499, March 2018..
3. Praful D. Mankar, Goutam Das,, and Sant Sharan Pathak, "Coverage analysis of two-tier hetnets for co-channel, orthogonal, and partial spectrum sharing under fractional load conditions," *IEEE Transactions On Vehicular Technology*, Vol. 66, No. 8, pp 7149-7163, August 2017.
4. Debasish Bera,, Indrajit Chakrabarti, Sant S. Pathak,, and George K. Karagiannidis, "Another look in the analysis of cooperative spectrum sensing over nakagami- m fading channels," *IEEE Transactions On Wireless Communications*, Vol. 16, No. 2, pp 856-871, February 2017.
5. Debasish Bera, Indrajit Chakrabarti, and Sant Sharan Pathak, "Modelling of cooperative spectrum sensing over rayleigh fading without csi in cognitive radio networks," *Wireless Personal Communications*, Vol.86, pp 1281-1297, 2016.
6. Praful D. Mankar, Goutam Das, and S. S. Pathak, " Modeling and coverage analysis of bs-centric clustered users in a random wireless network," *IEEE Wireless Communications Letters*, Vol. 5, No. 2, pp 208-211, April 2016.
7. Praful D. Mankar, Bibek R. Sahu, Goutam Das, and S. S. Pathak, "Evaluation of blocking probability for downlink in poisson networks," *IEEE Wireless Communications Letters*, Vol. 4, No. 6, pp 625-628, December 2015.
8. Praful D. Mankar, Goutam Das, S. S. Pathak,, and R. V. Rajakumar, "A method for accessing spatial spectrum holes for relay based cognitive cellular networks," *IEEE Wireless Communications Letters*, Vol. 4, No. 3, pp 245-248, June 2015.

9. Praful D. Mankar, Goutam Das, and S. S. Pathak, "A novel proportionally fair spectrum allocation In two tiered cellular networks," *IEEE Communications Letters*, Vol. 19, No. 4, pp 629-632, April 2015.
10. Seemanti Saha, Saswat Chakrabarti, and Sant Saran Pathak, "TSK type self-organising online fuzzy equalisation to mitigate nonlinear power amplifier distortions in OFDM systems," *Int. J. Autonomous and Adaptive Communications Systems*, Vol. 8, No. 1, pp 23-41, 2015.
11. M. Ravi Kumar, P. Gangul, S.S. Pathak, and N.B. Chakrabarti, "Construction and generation of OCDMA code families using a complete row-wise orthogonal pairs algorithm," *Int. J. Electron. Commun. (AEÜ)*, vol. 67, pp 868– 874, 2013.
12. Sudhir B. Lande, J. B. Helonde, Rajesh Pande, and S.S.Pathak, "Adaptive subcarrier and bit allocation for downlink ofdma system with proportional fairness," *International Journal of Wireless & Mobile Networks (IJWMN)*, Vol. 3, No. 5, pp 125-140, October 2011.
13. SanjayM.Gulhane and Sant S.Pathak, "Edge-assisted classical decorrelator for multiuser asynchronous DS-CDMA channel," *Signal Processing*, Vol. 90, pp 914–925, 2010.
14. Chinmoy Chakraborty, S.S.Pathak, Rajarshi Ror, and Saswat Chaktabarti, "An optimal probabilistic traffic engineering scheme for heterogeneous networks," *J. Coimbatore Institute of Information Technology (CIIT)*, pp 35-39, 2010.
15. M. Ravi Kumar, S.S. Pathak , and N.B. Chakrabarti, "Design and analysis of three-dimensional OCDMA code families," *Optical Switching and Networking*, Vol.6, 243-249, 2009.
16. Priyabrata Parida, Abhishek Kumar, Siddharth Kumar, Sumit Kundu, and S.S.Pathak, "Performance evaluation of identical block length and rate LDPC codes of structured regular and structured irregular characteristics," *Int. J. of Systems and Technologies*, Vol. 2, No. 2, pp 179-187, 2009.
17. M. Ravi Kumar, S.S. Pathak, and N.B. Chakrabarti. " Design and performance analysis of code families for multi-dimensional optical CDMA," *IET Communications*, Vol. 3, Iss. 8, pp. 1311–1320, 2009.
18. Aruna Tripathy, Sant Saran Pathak, and Saswat Chakrabarti, " A low complexity approach to Turbo Equalizer," *WSEAS Transactions on Signal Processing*, pp 251-259, Issue 5, Volume 4, May 2008.
19. Aruna Tripathy, Sant Saran Pathak, Saswat Chakrabarti, "An improved SIC based Turbo equalizer," *WSEAS Transactions on Communications*, Issue 12, Volume 6, pp 867-974, December 2007.
20. A.D. Banik, U.C. Gupta, and S.S. Pathak, "On the GI/M/1/N queue with multiple working vacations—analytic analysis and computation," *J. Applied Mathematical Modelling*, Vol. 31, pp 1701–1710, 2007.

In Proceedings of Regular IEEE Conferences (Abroad)

1. Debasish Bera, Indrajit Chakrabarti, and S.S.Pathak, "Cooperative spectrum sensing over correlated Rayleigh fading channels in cognitive radio using factor graph," *IEEE ICC*, Sydney, Australia, pp 1555-1560, June 10-14, 2014.

2. Debasish Bera, Indrajit Chakrabarti, P. Ray, and S.S.Pathak, "Factor graph based cooperative spectrum sensing in cognitive radio over time varying channels," *IEEE VTC* Spring Conference, Dresden, Germany, pp 1-5, June 2-5, 2013.
3. P.D.Mankar, G.Das, and S.S.Pathak, "A centralized method for optimal power allocation in cognitive radio networks," *IEEE Globecom Workshops*, Atlanta, Georgia, USA, pp 385-390, December 9-13, 2013.
4. P.D.Mankar, R.V.Rajakumar, and S.S.Pathak, "Likelihood criteria based co-channel primary transmitters localization algorithm for cognitive radio networks," *IEEE TENCON* Spring Conference, Sydney, Australia, pp 411-415, April 17-19, 2013.

In Proceedings of Regular IEEE Conferences (In India)

1. Bera, D.; Pathak, S.S.; Chakrabarti, I., "Factor graph based CRSC turbo code and iterative receiver design," *IEEE TENCON*, 2011, pp 503 – 507.

Digital Object Identifier: [10.1109/TENCON.2011.6129155](https://doi.org/10.1109/TENCON.2011.6129155)

2. Patil, S.R.; Pathak, S.S., "Improved performance irregular quasi-cyclic LDPC code design from BIBD's using threshold minimization," *IEEE TENCON*, 2008., pp1-6

Digital Object Identifier: [10.1109/TENCON.2008.4766569](https://doi.org/10.1109/TENCON.2008.4766569)

3. Gulhane, S.M.; Pathak, S.S., "Partial parallel interference cancellation based edge assisted classical decorrelator (EACD-PPIC) ," *IEEE TENCON*, 2008, pp 1-6.

Digital Object Identifier: [10.1109/TENCON.2008.4766725](https://doi.org/10.1109/TENCON.2008.4766725)

4. Chakraborty, C.; Pathak, S.S.; Chakrabarti, S., "An O(n) Telephony Gateway Selection Methodology for IP-PSTN Packet Routing," *IEEE INDICON*, 2009, pp1-4.

Digital Object Identifier: [10.1109/INDICON.2009.5409344](https://doi.org/10.1109/INDICON.2009.5409344)

6. Bera, D.; Maheswari, S.; Chakrabarti, I.; Pathak, S.S., "Decentralized cooperative spectrum sensing in cognitive radio without fusion centre," *Communications (NCC)*, 2014 National Conference on.

Digital Object Identifier: [10.1109/NCC.2014.6811322](https://doi.org/10.1109/NCC.2014.6811322)

Publication Year: 2014 , Page(s): 1 – 5.

7. Mankar, P.; Pathak, S.S.; Rajakumar, R.V., "A cooperative secondary user localization based primary user localization method for cognitive radio networks," *Communications (NCC)*, 2012 National Conference on.

Digital Object Identifier: [10.1109/NCC.2012.6176751](https://doi.org/10.1109/NCC.2012.6176751)

Publication Year: 2012 , Page(s): 1 – 5.

8. Guha, D.; Pathak, S.S., " Analysis and performance comparison of uniform and mixed service policy for vacation queue," *Communications (NCC)*, 2012 National Conference on.

Digital Object Identifier: [10.1109/NCC.2012.6176905](https://doi.org/10.1109/NCC.2012.6176905)

Publication Year: 2012 , Page(s): 1 – 5.

9. Bera, D.; Pathak, S.S.; Chakrabarti, I., “A normal factor graph approach for cooperative spectrum sensing in cognitive radio,” Communications (NCC), 2012 National Conference on Digital Object Identifier: 10.1109/NCC.2012.6176754
Publication Year: 2012 , Page(s): 1 – 5.

10. Anilkumar, C.D.;;Khan, D.;;Bansal, A.; Khandelwal,,A.; Pathak, ,S..S.,
“Quantized modulation diversity for 64-QAM,” Communications (NCC), 2012 National Conference on.
Digital Object Identifier: 10.1109/NCC.2012.6176910_
Publication Year: 2012 , Page(s): 1 – 4.

11. Saha, S.; Pathak, S.S.; Chakrabarti, S., “Comprehensive Learning Particle Swarm Optimization based TSK structure identification and its application in OFDM receiver for nonlinear channel equalization ,” Communications (NCC), 2011 National Conference on,
Digital Object Identifier: 10.1109/NCC.2011.5734745
Publication Year: 2011 , Page(s): 1 – 5.

List of Ph.D. Guidance from August 2007 to Date

1. Aruna Tripathy, “Error performance and complexity analysis of low complexity turbo equalization,” E and ECE, IIT Kharagpur, 2008.
2. Siddarama Patil, “design of improved performance structured irregular low density parity check codes and reduced complexity belief propagation decoders,” E and ECE, IIT Kharagpur, 2009.
3. Sanjay M. Gulhane, “Efficient high performance decorrelator designs for multiuser detection in CDMA based asynchronous wireless communication systems,” E and ECE, IIT Kharagpur, 2010. E and ECE, IIT Kharagpur, 2009.
4. Manju Sarvagya, “Queue based resource and packet scheduling algorithm for UMTS,” E and ECE, IIT Kharagpur, 2010.
5. M. Ravi Kumar, “Spreading codes for all optical code division multiple access communication systems,” GSSST, IIT Kharagpur, 2011.
6. Seemanti Saha, “Takagi-Sugeno-Kang type fuzzy system identification and its application in OFDM receiver to compensate channel nonlinearity,” GSSST, IIT Kharagpur, 2014.
7. Debasish Bera, “Cooperative spectrum sensing in cognitive radio networks using graph message passing,” GSSST, IIT Kharagpur, 2016.
8. Praful D. Mankar, “Load-aware analysis of random two-tier hetnets under three different spectrum allocation methods,” E and ECE, IIT Kharagpur, 2016.
9. Anil Kumar C.D., “Energy saving in wireless networks by modified physical layer algorithms,” E and ECE, IIT Kharagpur, 2017.