# SHORT RESUME

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**Present Address:**
Assistant Professor (from Dec. 2009 till present)
School of Basic Sciences
Indian Institute of Technology, Bhubaneswar
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## Education

**Doctor of Philosophy (Ph. D.)** **2002-- 2006**
**From:**
**D**epartment of Mathematics
Indian Institute of Technology, Kharagpur -721302
India

## Publications (Published/Accepted Papers in the Journal):

1. U. C. Gupta, A. D. Banik and S. S. Pathak, 2005. Complete analysis of MAP/G/1/N queue with single (multiple) vacation(s) under limited service discipline, Journal of Applied Mathematics and Stochastic Analysis 2005 (3), 353-373.
2. A. D. Banik, U. C. Gupta and S. S. Pathak, 2006. Finite buffer vacation models under E-limited with limit variation service and Markovian arrival process, Operations Research Letters 34 (5), 539-547.
3. A. D. Banik, U. C. Gupta and S. S. Pathak, 2006. BMAP/G/1/N queue with vacations and limited service discipline, Applied Mathematics and Computation 180 (2), 707-721.

4. U. C. Gupta and A. D. Banik, 2007. Complete analysis of finite and infinite buffer GI/MSP/1 queue-a computational approach, Operations Research Letters 35 (2), 273-280.
5. A. D. Banik, U. C. Gupta and S. S. Pathak, 2007. On the GI/M/1/N queue with multiple working vacations-analytic analysis and computation, Applied Mathematical Modelling 31(9), 1701-1710.
6. A. D. Banik and U. C. Gupta, 2007. Analyzing the finite buffer batch arrival queue under Markovian service process: GI[X] /MSP/1/N. Journal of Operations Research of the Spanish Society of Statistics and Operations Research (TOP) 15(1), 146-160.
7. A. D. Banik and U. C. Gupta, 2008. Finite buffer vacation queue under E-limited with limit variation service and batch Markovian arrival process. Quality Technology and Quantitative Management, Special Issue: Queueing Systems with Server Vacations (Part I) 5(1), 1-20.
8. A. D. Banik, M. L. Chaudhry and U. C. Gupta, 2008. On the finite buffer queue with renewal input and batch Markovian Service Process: GI/BMSP/1/N. Methodology and Computing in Applied Probability 10(4), 559-575.
9. A. D. Banik, 2009. The infinite-buffer single server queue with a variant of multiple vacation policy and batch Markovian arrival process. Applied Mathematical Modelling 33(7), 3025-3039.
10. A. D. Banik, U. C. Gupta and M. L. Chaudhry, 2009. Finite-buffer bulk service queue under Markovian service process: GI/MSP(a.b)/1/N. Stochastic Analysis and Applications 27(3), 500-522.
11. A. D. Banik, 2009. Queueing analysis and optimal control of BMAP/G(a,b)/1/N and BMAP/MSP(a,b)/1/N systems. Computers and Industrial Engineering 57 (3), 748-761.
12. A. D. Banik, 2010. Analysis of single working vacation in GI/M/1/N and GI/M/1/∞ queueing systems. International Journal of Operational Research. 7 (3), 314-333.
13. K. Sikdar, U. C. Gupta and A. D. Banik, 2009. Performance analysis of a finite-buffer batch service queue with general input and exponential multiple vacations. Journal of Probability and Statistical Science 7 (2), 191-210.
14. A. D. Banik, 2011. Analyzing state-dependent arrival in GI/BMSP/1/∞ queues. Mathematical and Computer Modelling 53 (5), 1229-1246.
15. A. D. Banik, 2013. Stationary distributions and optimal control of queues with batch Markovian arrival process under multiple adaptive vacations. Computers & Industrial Engineering 65 (3), 455-465.
16. A. D. Banik, 2013. Analysis of Queue-Length Dependent Vacations and P-Limited Service in BMAP/G/1/N Systems: Stationary Distributions and Optimal Control. International Journal of Stochastic Analysis 2013, 14 Pages.
17. D. Guha and A. D. Banik 2013. On The Renewal Input Batch-arrival Queue Under Single And Multiple Working Vacation Policy With Application To EPON. INFOR: Information Systems and Operational Research 51 (4), 175-191.
18. A. D. Banik, 2014. Some aspects of stationary characteristics and optimal control of the BMAP/G−G/1/N (∞) oscillating queueing system. Applied Stochastic Models in Business and Industry 31, 214-230.

19. A. D. Banik, 2017. Stationary Analysis of a BMAP/R/1 Queue with R-type Multiple Working Vacations. Communications in Statistics-Simulation and Computation. (Article in Press)
20. A. D. Banik, 2015. Single server queues with batch Markovian arrival process and bulk renewal or non-renewal service. Journal of system science and systems engineering. 24, 337-363.
21. Gopinath Panda, Veena Goswami, A. D. Banik, Dibyajyoti Guha, 2016. Equilibrium balking strategies in renewal input queue with Bernoulli-schedule controlled vacation and vacation interruption, Journal of Industrial and Management Optimization. 12 (3), 851--878. ([Publisher: American Institute of Mathematical Sciences]
22. Chaudhry M. L., A. D. Banik, A. Pacheco, Souvik Ghosh, 2016. A Simple Analysis of system characteristics in the Batch Service Queue with Infinite-buffer and Markovian Service Process using the Roots Method: GI/C-MSP(a,b)/1/∞. RAIRO Operations Research 50, 519—551.
23. ML Chaudhry, AD Banik, A Pacheco, 2015. A simple analysis of the batch arrival queue with infinite-buffer and Markovian service process using roots method: GI^{[X]}/C-MSP/1/∞. Annals of Operations Research. (Article in Press)
24. Dibyajyoti Guha, Veena Goswami, A. D. Banik, 2016. Algorithmic computation of steady-state probabilities in an almost observable GI/M/c queue with or without vacations under state dependent balking and reneging. Applied Mathematical Modelling 40, 4199–4219.
25. Dibyajyoti Guha, Veena Goswami, A. D. Banik 2015. Equilibrium balking strategies in renewal input batch arrival queues with multiple and single working vacation. Performance Evaluation 94, 1—24.
26. Gopinath Panda, A.D. Banik & M.L. Chaudhry 2017. Stationary distributions of the R[X]/R/1 cross-correlated queue. Communication in Statistics-Theory and Methods. (Article in Press)
27. Gopinath Panda, Veena Goswami, A. D. Banik 2016. Equilibrium and Socially Optimal Balking Strategies in Markovian Queues with Vacations and Sequential Abandonment. Asia-Pacific Journal of Operational Research 33(05), 34 Pages.
28. Souvik Ghosh, A. D. Banik 2017. An algorithmic analysis of the BMAP/MSP/1 generalized processor-sharing queue. Computers & Operations Research 79, 1–11.
29. A. D. Banik, M. L. Chaudhry 2016. Efficient Computational Analysis of Stationary Probabilities for the Queueing System BMAP/G/1/N With or Without Vacation(s). INFORMS Journal on Computing, 29(1), 140–151.

**Publications (in International Conference proceedings):**

**1** A. D. Banik, U. C. Gupta and M. L. Chaudhry, 2007. Finite-buffer bulk service queue under Markovian service process. (ACM International Conference Proceeding Series; Vol. 321) Proceedings of the 2nd international conference on Performance evaluation methodologies and tools, Valuetools 2007, October 23-25, 2007, Nantes, France.

2 V. S. Borkar, D. J. Das, A. D. Banik and D. Manjunath, 2008. A learning scheme for stationary probabilities of large Markov chains with examples. Proceedings of the

Forty-Sixth Annual Allerton Conference, September 23-26, 2008, University of Illinois at Urbana-Champaign, IL, USA.

3 AD Banik and SK Samanta, 2013. Controlling Packet Loss of Bursty and Correlated Traffics in a Variant of Multiple Vacation Policy. Distributed Computing and Internet Technology, LNCS, 208-219. [Publisher: Springer]

4 D Guha, AD Banik, V Goswami, S Ghosh, 2014. Equilibrium Balking Strategy in an Unobservable GI/M/c Queue with Customers' Impatience. Distributed Computing and Internet Technology, LNCS, 188-199. [Publisher: Springer]

5 G Panda, AD Banik and ML Chaudhry, 2014. Inverting the Transforms Arising in the GI/M/1 Risk Process Using Roots. Mathematics and Computing 2013, 297-312. [Publisher: Springer]

6 Gopinath Panda, Veena Goswami, A D Banik, 2015. Equilibrium abandonment strategies in a cloud management system (CMS): A queueing approach, Presented in Stochastic Models of Manufacturing and Service Operations, Volos, Greece, June 1-6, 2015 and included in the conference proceedings [Publisher: University of Thessaly Press]

7 Gopinath Panda, A. D. Banik, and M. L. Chaudhry, 2016. Computational analysis of the GI/G/1 risk process using roots, Presented in the International Conference on Frontiers in Optimization: Theory and Applications, held during November 24-26, 2016 at Heritage Institute of Technology, Kolkata, India. (This paper bags Best paper (Theory) in FOTA-2016 and to be included in the Springer proceedings)

8 A. D. Banik, Souvik Ghosh, and Debasis Basu, 2016. Computational Analysis of a Single Server Queue with Batch Markovian Arrival and Exponential Single Working Vacation, , Presented in the International Conference on Frontiers in Optimization: Theory and Applications, held during November 24-26, 2016 at Heritage Institute of Technology, Kolkata, India. (To be included in the Springer proceedings)

## Professional Experience

***Post-Doctoral visitor at IST, Lisbon, Portugal two times (2010, 2012) with total duration of six and a half months***

***Post-Doctoral visitor at School of Technology and Computer Science of Tata Institute of Fundamental Research, Mumbai, India since 1st January 2008 till September 2009.***

***Post-Doctoral visitor at* INRIA (IRISA), Campus Universitaire De Beaulieu *F-35042 Rennes, Cedex France since 18 December, 2006 to 31 July, 2007.***

***Full time teaching experience at Indian Institute of Technology, Bhubaneswar since January, 2010 to present.***

***Tutorial classes/Lab sessions of B.Tech. students of IIT, Kharagpur during Ph. D.***

## Personal Achievements

2013 Obtained a project entitled `` Development of computational methods for stochastic models with Markovian arrival/service process and their applications" from DST, New Delhi, India

2009 Obtained FCT (Fundação para a Ciência e a Tecnologia), Portugal Post-Doctoral fellowship for one year

2007 Obtained INRIA, Rennes (IRISA) one year Post-Doctoral fellowship

2001 Qualified National Eligibility Test (**NET**) 1st July, 2001 in CSIR Junior Research Fellowship (JRF) category for pursuing Research/Ph. D. in the field of Mathematical Sciences as well as eligible to appear as a candidate for Lecturer to UGC or State Government approved Degree colleges

## RESEARCH GUIDANCE

| **Degree Guidance** | **Number Completed** | **Number in Progress** |
|---|---|---|
| M.Sc/M.Tech/ME/MS/M.Phil. | Joint ,04 | 02 |
| Doctoral | Single 02 | 01 |

## Courses Taught at IIT, Bhubaneswar

Under Graduate Mathematics-I,-II, Transform Calculus, Probability and Statistics, Stochastic Process Simulation, Queueing Theory in Computer Science

## Computer Skills

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|---|---|
| *Operating systems:* | Windows and Linux |
| *Programming languages:* | Fortran 77, C and C++. |
| Software Uses**:** | Mathematica, Matlab, Maple |

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