GOVERNMENT GENERAL DEGREE COLLEGE, RANIBANDH

FACULTY PROFILE

DEPARTMENT OF MATHEMATICS

Dr. Prasenjit Mondal

Designation   Assistant Professor (W.B.E.S.)

Address   Vill.-Chabbishpur, P.O. - Dharasimul, Dist.-Hooghly, Pin-712416, West Bengal, India.

Mobile No.   (+91)-9903245785

E mail Address   prasenjit1044@yahoo.com

Educational Qualification

Degree	Institution	Year
Ph.D.	Jadavpur University	2016
P.G.	Jadavpur University	2008
U.G.	Jadavpur University	2006
B.Ed.	Netaji Subhas Open University	2015

Research Areas

Non-cooperative Dynamic Games (which include Stochastic Games and Semi-Markov Games), Markov and Semi-Markov Decision Processes, Optimization, Linear Complementarity Problems and their applications in Game Theory.

Areas of Interest/ Specialization

Differential Equations, Graph Theory, Probability and Operations Research

Career Profile

1. Assistant Professor in West Bengal Education Service, Department of Mathematics, Government General Degree College at Ranibandh, Bankura, India from July 29, 2016 to till date.
2. Assistant Professor in West Bengal Education Service, Department of Mathematics,

Administrative Assignments

A member of IQAC Committee.

Topics Taught In the Previous Academic Year

Geometry, Calculus, Linear Algebra, Vector, Probability, Linear Programming, Differential Equations.

Publication

Papers Published in Peer-Reviewed Journals (Also UGC listed):

1. **Mondal, P. (2022).** Discounted Semi-Markov Games and Algorithms for Solving Two Structured Classes. International Game Theory Review. World Scientific Publishing Company, ISSN: 0219-1989 (P), 1793-6675 (O), IF: 0.3 (2022), DOI: 10.1142/S0219198921500067, 24(1), 2150006.

2. **Mondal, P.,** Neogy, S. K., Gupta, A. and Ghorui, D. (2020). A Policy Improvement Algorithm for Solving a Mixture Class of Perfect Information and AR-AT Semi-Markov Games. **International Game Theory Review**, World Scientific Publishing Company, ISSN: 0219-1989 (P),1793-6675 (O), IF: 0.3 (2022), DOI:10.1142/S0219198920400083, 22(2), 204008-1—204008-19.

3. **Mondal, P.** (2020). Computing Semi-Stationary Optimal Policies for Multichain Semi-Markov Decision Processes. **Annals of Operations Research**, Springer, ISSN: 0254-5330 (P), 1572-9338 (O), I.F. 4.8 (2022), DOI: 10.1007/s10479-017-2686-x, 287(2), 843–865.

4. Neogy, S. K., **Mondal, P.,** Gupta, A. and Ghorui, D. (2018). On Solving Mean Payoff Games using Pivoting Algorithms**. Asia-Pacific Journal of Operational Research,** World Scientific Publishing Co. & Operational Research Society of Singapore, ISSN: 0217-5959 (P), 1793-7019 (O), I.F. 0.561 (2018), DOI: 10.1142/S0217595918500355, 35(5), 1850035-1—

1850035-26.

5. Sinha, S. and **Mondal, P.** (2017). Semi-Markov Decision Processes with Limiting Ratio Average Rewards. **Journal of Mathematical Analysis and Applications,** Elsevier, ISSN: 0022-247X (P), 1096-0813 (O), I.F. 1.188 (2018), DOI: 10.1016/j.jmaa.2017.06.017, 455(1), 864-871.

6. **Mondal, P.** (2017). On Zero-Sum Two-Person Undiscounted Semi-Markov Games with a Multichain Structure. **Advances in Applied Probability**, ISSN: 0001-8678 (P), 1475-6064 (O). I.F. 0.822 (2018), DOI: 10.1017/apr.2017.23, 49(3), 826-849.

7. **Mondal, P.** (2018). Completely Mixed Strategies for Single Controller Unichain Semi-Markov Games with Undiscounted Payoffs. **Operational Research - An International Journal,** Springer, ISSN: 1109-2858 (P), 1866-1505 (O), I.F. 1.485 (2018). DOI: 10.1007/s12351-016-0272-7, 18(2), 451-468.

8. **Mondal**, **P.,** Neogy S. K., Sinha, S. and Ghorui, D. (2017). Completely Mixed Strategies for Two Structured Classes of Semi-Markov Games, Principal Pivot Transform and Its Generalizations. **Applied Mathematics & Optimization,** Springer, ISSN: 0095-4616 (P), 1432-0606 (O), I.F. 1.895 (2018). DOI: 10.1007/s00245-016-9362-4, 76(3), 593-619.

9. **Mondal, P.** (2016). On Undiscounted Semi-Markov Decision Processes with Absorbing States. **Mathematical Methods of Operations Research,** Springer, ISSN: 1432-2994 (P), 1432-5217 (O), I. F. 1.023 (2018), DOI: 10.1007/s00186-015-0524-y, 83(2), 161-177.

10. **Mondal, P.**, Sinha, S., Neogy, S. K. and Das, A. K. (2016). On Discounted AR-AT Semi-Markov Games and Its Complementarity Formulations, **International Journal of Game Theory**, Springer, ISSN: 0020-7276 (P), 1432-1270 (O), I.F. 0.615 (2018), DOI: 10.1007/s00182-015-0470-1, 45(3),

567-583.

11. **Mondal, P.** (2015). Linear Programming and Zero-Sum Two-Person Undiscounted Semi-Markov Games. **Asia-Pacific Journal of Operational Research**. World Scientific Publishing Co. & Operational Research Society of Singapore, ISSN: 0217-5959 (P), 1793-7019 (O), I.F. 0.561 (2018), DOI: 10.1142/S0217595915500438. 32(6), 1550043-1—1550043-20.

12. **Mondal, P.** and Sinha, S. (2015). Ordered Field Property for Semi-Markov Games when One Player Controls Transition Probabilities and Transition Times, **International Game Theory Review**, World Scientific Publishing Company, ISSN: 0219-1989 (P), 1793-6675 (O), IF: 0.3 (2022), DOI: 10.1142/S0219198915400228, 17(2), 1540022-1--1540022-26.

13. **Mondal, P.** and Sinha, S. (2013). Ordered Field Property in a Subclass of Finite SeR-SIT Semi-Markov Games, **International Game Theory Review**, World Scientific Publishing Company, ISSN: 0219-1989 (P), 1793-6675 (O), IF: 0.3 (2022), DOI: 10.1142/S0219198913400264, 15(4), 1340026-1--1340026-20.

Published in Conference Proceedings:

1. **Mondal, P.**, Sinha, S. (2020). Semi-stationary Equilibrium Strategies in Non-cooperative N-person Semi-Markov Games. In: Roy P., Cao X., Li XZ., Das P., Deo S. (eds) Mathematical Analysis and Applications in Modeling. ICMAAM 2018. Springer Proceedings in Mathematics & Statistics, Springer, Singapore, DOI: 10.1007/978-981-15-0422-8_28, 302, 331-343.

Papers Submitted in Peer-Reviewed Journals:

1. Mondal, P. (2023). A Note on Zero-Sum Two-Person Undiscounted One Player control Semi-Markov Games. Submitted to **International Game Theory Review.** Resubmitted on 28/01/2024.

Papers Presented at Conferences, Workshops and Symposium:

1. Mondal, P. (2023). Linear Complementarity and the Single Controller Unichained Semi-Markov Polystochastic Game with Limiting Ratio Average Costs. 5th Regional Science & Technology Congress, 2022-23 (January 09, 2023) Jointly organised by The Department of Science and Technology, and Biotechnology, Govt of West Bengal and Bankura University.

2. Mondal, P. (2019). Completely Mixed Strategies for Switching Controller Stochastic Games with Undiscounted Payoffs Using Generalized Principal Pivot Transform. 4th Regional Science & Technology Congress (Western Region), 2019 (December 12-13, 2019) Jointly organised by The University of Burdwan, Burdwan & Department of Science & Technology and Biotechnology (DSTBT), Government of West Bengal

3. Mondal, P. (2018). On Single Controller Semi-Markov Games Under Limiting Ratio Average Payoff. *International Symposium on Operations Research and Game Theory: Modeling and Computation (ISORGT-18)* at Indian Statistical Institute, Delhi Centre during January 9-11, 2018.

4. Mondal, P. (2017). Algorithms for Solving Some Structured Classes of Semi-Markov Games. *The 2017 Symposium on Mathematical Programming and Game Theory (SMPGT-17)* at Indian Statistical Institute, Delhi Centre during January 9-11, 2017.

5. Mondal, P. and Sinha, S. (2016). Semi-Stationary Strategies in Limiting Ratio Average Semi-Markov Games. *Game Theory & Optimization (GT & O)* conference at Indian Institute of Technology Madras (IITM), Chennai during June 9-10, 2016.

6. Mondal, P. (2015). Completely Mixed Strategies for Single Controller Unichain Semi-Markov Games with Undiscounted Payoffs. *International Conference on Nonlinear Dynamics, Analysis and Optimization (ICNDAO 2015)*, December 9-11, 2015 at Mathematics Department, Jadavpur

University, Kolkata 700032, India.

7. Mondal, P. and Sinha, S. (2015). One Player Control Semi-Markov Games With Limiting Average Payoffs. *Workshop on Applied Optimization Models and Computation (WAOMC-15)*, January 28-30, 2015 at Indian Statistical Institute, Delhi Centre, New Delhi-110016, India.

8. Mondal, P. and Sinha, S. (2013). An Ordered Field Property for One Player Control Finite Semi-Markov Games. *International Symposium on Applied Optimization and Game-Theoretic Models (ISAOGTM-13)*, January 9-11, 2013 at ISI, New Delhi-110016, India.

9. Mondal, P. (2012). On The Existence of Value and Stationary Optimals for Undiscounted Semi-Markov Games Under Unichain Case. *International Workshop on Game Theory and Operations Research Applications*, December 19, 2012 at Green Park Hotel, Hyderabad, India.

10. Mondal, P. and Sinha, S. (2012). Ordered Field Property in Finite Modified Sersit Semi-Markov Games. *International Conference on Game Theory, Operations Research and their Applications (GTORA-2012)*, January 5-7, 2012 at Indian Statistical Institute, Chennai Centre, Taramani, Chennai 600113, India.

11. Mondal, P. (2011). An Ordered Field Property For One Player Control Finite Semi-Markov Games. *National Conference on Role of Mathematical and Physical Sciences in Engineering and Technology (NCRMPET-2011)*, October 21-22, 2011 at Department of Mathematics and Physics, Government Degree College Karanprayag (Chamoli), Uttarakhand, India.

Papers Presented by Co-authors at Conferences and Workshops:

1. Sinha, S, Bakshi, K. G. and Mondal, P. (2018). On Zero-Sum Two-Person Perfect Information Semi-Markov Games. (Presented by Sinha, S.) *International Symposium on Operations Research and Game Theory: Modeling and Computation (ISORGT-18)* at Indian Statistical Institute, Delhi

Centre during January 9-11, 2018.

2. Sinha, S and Mondal, P. (2016). On Single Controller Semi-Markov Games under Limiting Ratio Average Payoff. (Presented by Sinha, S.) *Game Theory & Optimization* conference at IIT Madras during June 9-10, 2016.

3. Mondal, P. and Sinha, S. (2013). On Average Reward Semi-Markov Decision Processes: An Example. (Presented by Sinha, S.) *International Symposium on Applied Optimization and Game-Theoretic Models (ISAOGTM-13)*, January 9-11, 2013 at ISI, New Delhi-110016, India.

Other Conferences and Workshops Attended:

1. Participated in "*Game Theory & Optimization*" workshop and conference organized by National Mathematics Initiative (NMI) and Indian Institute of Technology (IIT) Madras during June 6-10, 2016 held at IIT Madras, Chennai.

2. Participated in "*Mini Symposium on complementarity and Game Theory Models*", January 20-21, 2016 at ISI, Delhi Centre, New Delhi-110016, India.

Research Projects

- 2016 - Received UGC Minor Research Project (No. PSW-019/15-16 (ERO) with amount Rs. 3 lakhs) as sole investigator according to 12th Plan guidelines (2012-2017) entitled "Ordered field property and the existence of value for finite semi-Markov games".

Awards and Distinction

- 2009 - Qualified (Rank 0096/0237) CSIR-UGC Test for Junior Research Fellowship and Eligibility for Lectureship (December-2009) in Mathematical Sciences under Eligibility for Lectureship (NET) category conducted (jointly) by Council of Scientific and Industrial Research (CSIR)

and University Grants Commission (UGC), India.

- 2008 - Qualified CSIR-UGC Test for Junior Research Fellowship and Eligibility for Lectureship (July-2008) in Mathematical Sciences under Eligibility for Lectureship (NET) category conducted (jointly) by Council of Scientific and Industrial Research (CSIR) and University Grants Commission (UGC), India

- 2008 - Qualified Admission Test for M.Tech. in Quality, Reliability & Operations Research conducted by Indian Statistical Institute, Kolkata, India

Other Activities

Orientation/Refresher Course Attended:

1. Participated in the UGC sponsored 108th Orientation Programme from November 7, 2017 to December 4, 2017 in the UGC-HRD Centre, The University of Burdwan, Golapbag, Burdwan, India.

2. Participated in the Science Academies Refresher Course in Mathematics at Dayanand Science College Latur, Maharashtra under the sponsorship of IASc, INSA and NASI (Bangalore, New Delhi, Allahabad) during June 11-25, 2018.

3. Participated in the UGC-Sponsored Online Refresher Course in Gender Studies (Multidisciplinary), organized by the UGC-Human Resource Development Centre, Bharathidasan University from 20.02.2024 to 04.03.2024.