

KOUSHIK DAS

Curriculum Vitae

Assistant Professor of Mathematics
Taki Government College, West Bengal, INDIA
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Social Links

- Personal Website <https://sites.google.com/view/drkoushikdas/home>
- Google Scholar <https://scholar.google.co.in/citations?user=0an8RaoAAAAJ&hl=en>
- Linkedin <https://www.linkedin.com/in/dr-koushik-das-24a0b712b/>
- Research Gate https://www.researchgate.net/profile/Koushik_Das7
- Academia <https://takigovtcollege.academia.edu/DDas>
- ResearcherID <http://www.researcherid.com/rid/M-8383-2018>
- ORCID <https://orcid.org/0000-0002-1534-5453>

Education

- 19.07.2011–26.04.2017 **Ph.D.**, *Indian Institute of Technology Kharagpur*, Kharagpur, West Bengal, INDIA,
CGPA in Course Work: 8.67.
Subject: Mathematics
- 01.07.2007–24.12.2009 **M. Sc.**, *Jadavpur University*, Kolkata, West Bengal, INDIA,
Percentage: 71.50.
Subject: Pure Mathematics
- 2004–24.12.2007 **B. Sc.**, *Jadavpur University*, Kolkata, West Bengal, INDIA,
Percentage: 80.58.
Subject: Mathematics (Hons.), Physics, Chemistry, Computer Programming
- 2002–27.07.2004 **Higher Secondary**, *West Bengal Council of Higher Secondary Education*,
Palla K. P. C. H. S. High School, Palla, North 24 Parganas, West Bengal, INDIA,
Percentage: 79.70.
Subject: Bengali, English, Mathematics, Physics, Chemistry, Biological Science
- 2000–15.05.2002 **Secondary**, *West Bengal Board of Secondary Education*,
Palla High School, Palla, North 24 Parganas, West Bengal, INDIA,
Percentage: 86.87.
Subject: Bengali, English, Mathematics, Physical Science, Life Science, History, Geography, Physics (Addl.)

Ph.D. Details

- Title of Thesis *Set-Valued Optimization Problems under Generalized Cone Convexity*
- Date of Award *6 August, 2017*
- Supervisor *Prof. C. Nahak, Department of Mathematics, Indian Institute of Technology Kharagpur, INDIA.*

Abstract *The main objective of the thesis is to study set-valued optimization problems, set-valued fractional programming problems, set-valued D. C. optimization problems, set-valued semi-infinite programming problems, set-valued minimax programming problems, and set-valued vector equilibrium problems via generalized cone convexity assumptions.*

Specialization

M.Sc. *Advanced Algebra, Operator Theory and Graph Theory*
Specialization

Ph.D. *Applied Functional Analysis and Optimization*
Specialization

Skills and Expertise

Areas of Interest *Set-valued Optimization, Nonlinear Optimization, Optimization Theory*

Publications

- Google Scholar Citations: 225
- h-index: 10
- i10-index: 11
- No. of Papers in SCI Indexed Journals: 1
- No. of Papers in SCIE Indexed Journals: 9
- No. of Papers in Scopus Indexed Journals: 27
- No. of Papers in UGC CARE Journals: 36
- No. of Papers in Conference Proceeding: 1
- No. of Papers as Book Chapter: 1
- No. of Papers as Single Author: 12
- No. of Papers as First Author (at least two authors): 22
- No. of Papers as Second Author: 2
- No. of Papers as Third Author: 3

List of Publications

- 2025 **Koushik Das** and Chandal Nahak. Sufficiency and duality for set-valued optimization problems with κ -cone arcwise connectedness of higher-order. *Opsearch*, pages 1–25. Springer, 2025.
- 2024 **Koushik Das** and Chandal Nahak. Solutions of parametric set-valued optimization problems of higher-order. *Computational Intelligence for Data Analysis, Optimization Techniques for Decision-making and Information Security*, Editors: V. Kumar, M. Mittal and A. Kumari, Bentham Science Publishers Pte. Ltd., Singapore, volume 3, pages 18–35, 2024.
- 2024 **Koushik Das**, Izhar Ahmad, and Savin Treanta. Cone arcwise connectivity in optimization problems with difference of set-valued mappings. *SeMA J.*, volume 81, pages 511–529, 2024.
- 2024 **Koushik Das**. Set-valued semi-infinite programming problems with τ -cone arcwise connectedness of higher-order. *Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal.*, volume 31, pages 251–278, 2024.
- 2024 **Koushik Das**. Set-valued parametric optimization problems with higher-order ρ -cone arcwise connectedness. *SeMA J.*, volume 81, pages 589–607, 2024.
- 2024 **Koushik Das**. Set-valued optimization problems with higher-order (p, r) - ρ -cone arcwise connectedness. *J. Adv. Math. Stud.*, volume 17, pages 398–413, 2024.
- 2024 **Koushik Das**. Set-valued minimax fractional programming problems with higher-order ρ -cone arcwise connectedness. *Jnanabha (Accepted)*, pages 1–15, 2024.

- 2024 **Koushik Das**. Higher-order σ -cone arcwisely connectedness in optimization problems associated with difference of set-valued maps. *Results Control Optim.*, volume 16, pages 1–18 (100440). Elsevier, 2024.
- 2024 **Koushik Das**. Higher-order Mond-Weir duality of set-valued fractional minimax programming problems. *Yugosl. J. Oper. Res.*, pages 1–27. University of Belgrade, 2024.
- 2024 Najeeb Abdulaleem, Jinxia Cen, and **Koushik Das**. Sufficiency and duality for e-differentiable vector optimization problems under generalized convexity. *Hacet. J. Math. Stat.*, pages 1–17, 2024.
- 2023 **Koushik Das**, Savin Treanta, and Muhammad Bilal Khan. Set-valued fractional programming problems with σ -arcwisely connectivity. *AIMS Math.*, volume 8, pages 13181–13204, 2023.
- 2023 **Koushik Das**, Savin Treanta, and Thongchai Botmart. Set-valued minimax programming problems under σ -arcwisely connectivity. *AIMS Math.*, volume 8, pages 11238–11258, 2023.
- 2023 **Koushik Das** and Savin Treanta. Constrained controlled optimization problems involving second-order derivatives. *Quaest. Math.*, volume 46, pages 1093–1103, 2023.
- 2023 **Koushik Das**. Second-order optimality conditions and duality theorems for set-valued semi-infinite programming problems. *Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal.*, volume 30, pages 219–242, 2023.
- 2022 **Koushik Das**, Savin Treanta, and Tareq Saeed. Mond-Weir and Wolfe duality of set-valued fractional minimax problems in terms of contingent epi-derivative of second-order. *Math.*, volume 10, page 938, 2022.
- 2022 **Koushik Das** and Mohammad Esmael Samei. Using ρ -cone arcwise connectedness on parametric set-valued optimization problems. *J. Inequal. Appl.*, volume 57, pages 1–17, 2022.
- 2022 **Koushik Das**. Sufficiency and duality of set-valued fractional programming problems via second-order contingent epiderivative. *Yugosl. J. Oper. Res.*, volume 32, pages 167–188. University of Belgrade, 2022.
- 2022 **Koushik Das**. Set-valued minimax fractional programming problems under ρ -cone arcwise connectedness. *Control Cybernet.*, volume 51, pages 43–69, 2022.
- 2022 **Koushik Das**. Optimality conditions for parametric set-valued optimization problems via second-order contingent epiderivative. *J. Adv. Math. Stud.*, volume 15, pages 194–208, 2022.
- 2022 **Koushik Das**. On constrained set-valued optimization problems with ρ -cone arcwise connectedness. *Sema J.*, pages 1–16, 2022.
- 2022 M Hsini, L Mbarki, and **Koushik Das**. Existence of solutions of anisotropic problems with variable exponents with robin boundary conditions. *Math. Notes*, volume 112, pages 898–910, 2022.
- 2021 Savin Treanta and **Koushik Das**. On robust saddle-point criterion in optimization problems with curvilinear integral functionals. *Math.*, volume 9, page 1790, 2021.
- 2021 **Koushik Das** and Savin Treanta. On constrained set-valued semi-infinite programming problems with ρ -cone arcwise connectedness. *Axioms*, volume 10, page 302, 2021.
- 2021 **Koushik Das**, C. Nahak, and D. Roy. Set-valued optimization problems under cone convexity. *U.P.B. Sci. Bull., Ser. A*, volume 83, pages 69–82. University POLITEHNICA of Bucharest, 2021.
- 2021 **Koushik Das** and C Nahak. Set-valued optimization problems via second-order contingent epiderivative. *Yugosl. J. Oper. Res.*, volume 31, pages 75–94. University of Belgrade, 2021.
- 2021 **Koushik Das** and C Nahak. Parametric set-valued optimization problems under generalized cone convexity. *Jnanabha*, volume 51, pages 1–11. Vijnana Parishad of India, 2021.
- 2021 **Koushik Das**. Set-valued optimization problems with (p, r) - ρ -cone arcwise connectedness. *Jnanabha*, volume 51, pages 249–260. Vijnana Parishad of India, 2021.

- 2020 **Koushik Das** and C Nahak. Sufficiency and duality of set-valued semi-infinite programming problems under generalized cone convexity. *Acta Univ. M. Belii Ser. Math.*, volume 2020, pages 95–111. Department of Mathematics Faculty of Natural Sciences, Matej Bel University, 2020.
- 2020 **Koushik Das** and C Nahak. Sufficiency and duality in set-valued optimization problems under (p, r) - ρ - (η, θ) -invexity. *Acta Univ. Apulensis*, volume 62, pages 93–110. Department of Mathematics and Informatics, University of Alba Iulia, 2020.
- 2020 **Koushik Das** and C Nahak. Optimality conditions for set-valued minimax programming problems via second-order contingent epiderivative. *J. Sci. Res.*, volume 64, pages 313–321. Institute of Science, Banaras Hindu University, 2020.
- 2020 **Koushik Das** and C Nahak. Optimality conditions for set-valued minimax fractional programming problems. *SeMA J.*, volume 77, pages 161–179. Springer, 2020.
- 2017 **Koushik Das** and C Nahak. Set-valued minimax programming problems under generalized cone convexity. *Rend. Circ. Mat. Palermo*, volume 66, pages 361–374. Springer, 2017.
- 2017 **Koushik Das** and C Nahak. Optimization problems with difference of set-valued maps under generalized cone convexity. *J. Appl. Math. Inform.*, volume 35, pages 147–163. The Korean Society for Computational and Applied Mathematics, 2017.
- 2017 **Koushik Das** and C Nahak. Approximate quasi efficiency of set-valued optimization problems via weak subdifferential. *SeMA J.*, volume 74, pages 523–542. Springer, 2017.
- 2016 **Koushik Das** and C Nahak. Set-valued fractional programming problems under generalized cone convexity. *Opsearch*, volume 53, pages 157–177. Springer, 2016.
- 2016 **Koushik Das** and C Nahak. Optimality conditions for approximate quasi efficiency in set-valued equilibrium problems. *SeMA J.*, volume 73, pages 183–199. Springer, 2016.
- 2015 **Koushik Das** and C Nahak. Sufficiency and duality of set-valued optimization problems via higher-order contingent derivative. *J. Adv. Math. Stud.*, volume 8, pages 137–151, 2015.
- 2015 T K Dutta, S Kar, and **Koushik Das**. Power ternary semirings. *Afrika Mat.*, volume 26, pages 1483–1494. Springer, 2015.
- 2014 **Koushik Das** and C Nahak. Sufficient optimality conditions and duality theorems for set-valued optimization problem under generalized cone convexity. *Rend. Circ. Mat. Palermo*, volume 63, pages 329–345. Springer, 2014.
- 2012 S Kar and **Koushik Das**. On k -regular ternary semirings. In *Proceedings of the International Conference on Algebra 2010: Advances in Algebraic Structures*, pages 356–368. World Scientific, 2012.

Conferences, Seminars, and Workshops

Papers Presented in International Conferences

- Presented a paper entitled “Sufficient optimality conditions and duality theorems for set-valued optimization problem under generalized cone convexity” in 41st Annual Conference of OMS & International Conference On Industrial Mathematics and Scientific Computing (ICIMSC-2014) organized by Department of Mathematics, Kalinga Institute of Technology University, Bhubaneswar, INDIA during 4-5th January, 2014.
- Given a contributed talk on the paper entitled “Optimization problems with difference of set-valued maps under generalized cone convexity” in International Conference on Nonlinear Dynamics, Analysis and Optimization (ICNDAO-2015) organized by Department of Mathematics, Jadavpur University, Kolkata, West Bengal, INDIA during 9-11th December, 2015.
- Presented a paper entitled “Set-valued semi-infinite programming problems under generalized cone convexity” in International Conference on Recent Trends in Mathematical Sciences and Applications (ICRTMSA-2016) organized by Department of Mathematics, The University of Burdwan, Burdwan, West Bengal, INDIA during 9-11th February, 2016.

- Presented a paper entitled “*Sufficiency and duality in set-valued optimization problems under (p, r) - ρ - (η, θ) -invexity*” in 13th International Conference on “Mathematical Sciences for Advancement of Science and Technology” (MSAST 2019) at Kolkata, India organized by Institute for Mathematics, Bio-informatics, Information Technology and Computer Science (IMBIC), Branches: Sweden, Japan during 21st-23rd December, 2019.
- Presented a paper entitled “*Approximate quasi efficiency of set-valued optimization problems via weak subdifferential*” in International Conference on Analysis, Algebra, Combinatorics and their Applications (ICAACA-2020) organized by Department of Mathematics, Jadavpur University, Kolkata, West Bengal, INDIA during 20-22nd January, 2020.
- Presented a paper entitled “*Sufficiency and duality of set-valued fractional programming problems via second-order contingent epiderivative*” in International Conference on Mathematical Analysis and Applications (MAA 2020) organized by Department of Mathematics, NIT Jamshedpur during 2-4th November, 2020.
- Presented a paper entitled “*Set-valued minimax fractional programming problems via second-order contingent epiderivative*” in Studies on Scientific Developments in Geometry, Algebra, and Applied Mathematics Webinar organized by the Turkish Journal of Mathematics on 1-3 February 2022.
- Presented a paper entitled “*Sufficiency and duality for set-valued optimization problems with higher-order κ -cone arcwise connectedness*” in International Conference on Recent Advances in Mathematics and Data Science (ICRAMDS - 2024) organized by Department of Mathematics, Bioinformatics & Computer Applications, Maulana Azad National Institute of Technology Bhopal, India on June 27 - 28 , 2024.

Papers Presented in National Conferences

- Presented a paper entitled “*Set-valued Optimization Problems under (p, r) – ρ – (η, θ) -invexity*” in Research Scholars’ Day 2014 organized by Department of Mathematics, Indian Institute of Technology Kharagpur, West Bengal, INDIA during 21-22nd January, 2014.
- Presented a paper entitled “*Approximate Quasi Efficiency in Set-valued Equilibrium Problems*” in 6th Research Scholars’ Day organized by Department of Mathematics, Indian Institute of Technology Kharagpur, West Bengal, INDIA during 13-14th March, 2015.
- Presented a paper entitled “*Optimality conditions for approximate quasi efficiency in set-valued equilibrium problems*” in National Seminar on Analysis and Applications: Celebrating 100 years of the General Theory of Relativity organized by Department of Mathematics, West Bengal State University, Barasat, West Bengal, INDIA during 10-11th March, 2016.
- Presented a paper entitled “*Set-valued minimax programming problems under generalized cone convexity*” in National Conference on Engineering Mathematics (TOPAS-2017) organized by Department of Mathematics, Indian Institute of Technology Kharagpur, West Bengal, INDIA during 16-17th December, 2017.
- Presented a paper entitled “*Set-valued fractional programming problems under generalized cone convexity*” in National Seminar on “Current Trends in Mathematics and its Applications” (NSCTMA-2019) organized by Department of Mathematics, Jadavpur University, Kolkata, West Bengal, INDIA on 8th March, 2019.
- Presented a paper entitled “*Optimality conditions for set-valued optimization problems via second-order contingent epiderivative*” in NATIONAL WEBINAR on Recent Advances in Mathematics organized by Department of Mathematics in Collaboration with IQAC, West Bengal State University, Barasat, India on 24th August, 2020.
- Presented a paper entitled “*Set-valued fractional programming problems with σ -arcwisely connectivity*” in National Seminar on Recent Trends in Applied Mathematics 2024, (RTAM - 2024) organized by Department of Applied Mathematics, University of Calcutta, Kolkata, India during Mar 14-15, 2024.

- Presented a paper entitled “*On constrained set-valued optimization problems with ρ -cone arcwise connectedness*” in National Seminar on Algebra, Analysis, Discrete Mathematics & their Applications (NSAADMA-2024), organized by Department of Mathematics, Sree Chaitanya College, Habra, West Bengal on 3 April, 2024.

Experience

Teaching Experience

- 03.03.2015–**Assistant Professor**, *Taki Government College*, Taki, West Bengal, INDIA.
Ongoing
- 01.07.2012–**Tutorial Teacher**, *Indian Institute of Technology Kharagpur*, Kharagpur, West Bengal, INDIA.
30.06.2014
- 20.10.2009–**Assistant Teacher**, *Tenohari Jr. High School*, Raiganj, West Bengal, INDIA.
20.07.2010

Research Experience

- 01.08.2013–**Senior Research Fellowship**, *Indian Institute of Technology Kharagpur*, Kharagpur, West Bengal, INDIA.
02.03.2015
Worked as CSIR Senior Research Fellow under the supervision of Prof. C. Nahak.
- 19.07.2011–**Junior Research Fellowship**, *Indian Institute of Technology Kharagpur*, Kharagpur, West Bengal, INDIA.
31.07.2013
Worked as CSIR Junior Research Fellow under the supervision of Prof. C. Nahak.
- 21.07.2010–**Junior Research Fellowship**, *Jadavpur University*, Kolkata, West Bengal, INDIA.
15.07.2011
Worked as UGC Junior Research Fellow under the supervision of Prof. S.Kar.

Computer Skills

Operating Systems	Linux, Windows XP/7/8/10
Programming Language	C
Software Applications	Latex, MS Office, Libre Office, Mathematica

Awards and Achievements

- Awarded National Scholarship by Govt. of West Bengal at the Secondary Stage (Class-VIII) in 2000.
- Selected as a participant in Science Conclave: A Congregation of Nobel Prize Winners held in Indian Institute of Information Technology Allahabad during December 15-21, 2008.
- Ranked 8th in B.Sc. and 12th in M.Sc. at University Level.
- Qualified Regional Level Selection Test (Asst. Teacher) conducted by West Bengal Regional School Service Commission (WBSSC) in 2008 and 2010.
- Qualified GATE 2009 conducted by Indian Institute of Technology Roorkee.
- Qualified National Eligibility Test (CSIR & UGC NET) in June 2009, December 2009 and December 2010.
- Awarded Junior Research Fellowship (UGC JRF) at Department of Mathematics, Jadavpur University on 21.07.2010.
- Awarded Junior Research Fellowship (CSIR JRF) at Department of Mathematics, Indian Institute of Technology Kharagpur on 19.07.2011.
- Awarded Senior Research Fellowship (CSIR SRF) at Department of Mathematics, Indian Institute of Technology Kharagpur on 01.08.2013.

Reviewer

- Reviewer of Mathematical Reviews (Reviewer Number: 135480)
- Reviewer of SIAM Journal on Optimization.
- Reviewer of Opsearch, Springer.
- Reviewer of Yugoslav Journal of Operations Research.
- Reviewer of Journal of Industrial and Management Optimization.
- Reviewer of Kyungpook Mathematical Journal.

Languages Known

English	Read, Speak, and Write
Bengali	Read, Speak, and Write
Hindi	Speak

Personal Details

- Date of Birth: 16th March, 1987
- Father's Name: Anil Kumar Das
- Mother's Name: Shila Rani Das
- Gender: Male
- Category: General (UR)
- Nationality: Indian
- Religion: Hinduism
- Marital Status: Married
- MathSciNet MR Author ID: 966113
- Scopus Author ID: 56421266100

Hobbies

- Listening songs
- Watching movies
- Reading story books
- Cricket
- Chatting
- Quizzes

Membership

- Life Member of Calcutta Mathematical Society, Life Membership Card No.: LD/107
- Member of International Society on Multiple Criteria Decision Making
- Member of Working Group on Generalized Convexity (WGGC)

Academic Staff College: Orientation / Refresher Course attended

- Attended 66th Orientation Programme at UGC - HRDC, Jadavpur University from 21.08.2017 to 18.09.2017.
- Attended Refresher Course in Mathematics (RC-NBU-86) at UGC - HRDC, University of North Bengal from 07.12.2018 to 27.12.2018.

- o Attended Inter/Multidisciplinary Refresher Course in Oceanic Studies, organized Online by the UGC-Human Resource Development Centre, University of Calcutta, in the Department of Marine Science, University of Calcutta during February 07-22, 2023

Academic References

Dr. C. Nahak

Professor

Department of Mathematics

Indian Institute of Technology Kharagpur

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Dr. S. Treanță

Associate Professor

Department of Mathematics

University Politehnica of Bucharest, Romania

✉ savin.treanta@upb.ro

Dr. P. Panigrahi

Professor

Department of Mathematics

Indian Institute of Technology Kharagpur

✉ pratima@maths.iitkgp.ernet.in

Dr. I. Ahmad

Professor

Department of Mathematics

King Fahd University of Petroleum & Minerals,

Saudi Arabia

✉ drizhar@kfupm.edu.sa

Dr. S. Kar

Professor

Department of Mathematics

Jadavpur University, India

✉ karsukhendu@yahoo.co.in

Dr. Md. E. Samei

Assistant Professor

Department of Mathematics

Bu-Ali Sina University, Iran

✉ mesamei@basu.ac.ir

Declaration

I hereby solemnly declare that all the statements laid down above are true and genuine to best of my knowledge and belief.

Koushik Das.

Dr. Koushik Das

February 3, 2025