


DR KOKILA JAYAKUMAR

Curriculum vitae

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Citations : 375 h-index: 8 i10-index: 8

CURRENT POSITION

- Working as an Assistant Professor- Grade II in the Department of Statistics and Applied Mathematics at Central University of Tamil Nadu, Thiruvarur, India from 25th Nov 2023 to date.

Previous Teaching/Research Experiences

- Assistant Professor, Department of Statistics and Applied Mathematics at Central University of Tamil Nadu, Thiruvarur, India from 25th Nov 2019 to 24th Nov 2023 .
- NBHM Post doctoal fellow, Discipline of Mathematics, IIT Palakkad associated with Dr. Lakshmi K. Sankar from 1st Mar 2018 to 22nd Nov 2019.
- Women Post doctoral fellow, Department of Mathematics, IIT Madras associated with Prof. M. Thamban Nair from 10th Feb 2017 to 9th Feb 2018.

AREAS OF SPECIALIZATION

- Regularization on fractional Ill-posed Problems
- Fractional Control Problems • Fractional Modeling

ACADEMIC DETAILS

Ph.D., Mathematics

Supervisor : Dr. K. Balachandran
Professor (UGC-BSR) Bharathiar University,
Coimbatore, India
Field : Fractional Differential Equations (2010 - 2013)
and Control Theory

M.Phil., Mathematics

Guide : Dr. K. Balachandran
Professor (UGC-BSR) Bharathiar University,
Coimbatore, India
Field : Differential Equations (2008 - 2009)
and Control theory

M.Sc., Mathematics

Kongu Arts and Science College
Erode- 638 011. Affiliated to
Bharathiar University
Graduated with 87.7% (2006 - 2008)

GRANTS AWARDED

2021-2024 UGC StartUp Research Grant
(Ongoing) University Grant Commission,
New Delhi, India.
Amount Sanctioned: Rs. 10 Lakhs

FELLOWSHIPS

2018-2020 National Board of Higher Mathematics
Post Doctoral Fellowship
Department of Atomic Energy,
New Delhi, India.

2017-2018 Women Post Doctoral Fellowship
Indian Institute of Technology Madras,
Chennai, India

2010-2012 University Research Fellowship
Bharathiar University,
Coimbatore, India.

MEMBERSHIP

July 2024 Life Member (Membership No: L/2024/161)
to date Indian Mathematical Society
India

PROFESSIONAL SERVICE

2013 to date American Mathematical Society Reviewer (MR Author ID: 945860)
2022 Reviewed ToC of the popular book "Calculus: Early Transcendentals,
12th Edition by Howard Anton, Irl C. Bivens, Stephen Davis",
Wiley India Pvt. Ltd.

BOOK PUBLISHED

- 2022 Content Developed for the international Book Adaptation of the book
“Elementary Differential Equations and Boundary Value Problems, 12th Edition
by William E Boyce, Richard C DiPrima, Douglas B. Meade”, Wiley India Pvt. Ltd
as Subject Matter Expert.

RESEARCH PUBLICATIONS

Fractional Control Problems

1. K.Balachandran and **J.Kokila**, Controllability of stochastic functional integrodifferential evolution systems, *Journal of Applied Mathematics and Informatics*, 29 (2011) 587–601.
<http://koreascience.or.kr/article/JAKO201121559392337.page>
2. K. Balachandran, Yong Zhou and **J. Kokila**, Relative controllability of fractional dynamical systems with time varying delays in control, *Communications in Nonlinear Science and Numerical Simulation*, 17 (2012) 3508–3520.
<https://www.sciencedirect.com/science/article/abs/pii/S1007570411006952>
3. K.Balachandran and **J.Kokila**, On the Controllability of Fractional Dynamical Systems, *International Journal of Applied Mathematics and Computer Science*, 22 (2012) 523–531.
<https://www.amcs.uz.zgora.pl/?action=paperpaper=630>
4. K. Balachandran, **J. Kokila**, J.J. Trujillo, Relative Controllability of Fractional Dynamical Systems with Multiple Delays in Control, *Computers and Mathematics with Applications*, 64 (2012) 3037–3045.
<https://www.sciencedirect.com/science/article/pii/S0898122112000922>
5. K. Balachandran, Yong Zhou and **J. Kokila**, Relative controllability of fractional dynamical systems with distributed delays in control, *Computers and Mathematics*

with Applications, 64 (2012) 3201–3209.

<https://www.sciencedirect.com/science/article/pii/S0898122111010960>

6. K.Balachandran and **J.Kokila**, Controllability of fractional dynamical systems with prescribed controls, *IET Journal of Control Theory and Applications*, 7 (2013) 1242–1248.
<https://ietresearch.onlinelibrary.wiley.com/doi/10.1049/iet-cta.2012.0049>
7. K.Balachandran and **J.Kokila**, Constrained controllability of fractional dynamical systems, *Numerical Functional Analysis and Optimization*, 34 (2013) 1187–1205.
<https://www.tandfonline.com/doi/full/10.1080/01630563.2013.778868>
8. K.Balachandran and **J.Kokila**, Controllability of implicit fractional dynamical systems, *IMA Journal of Applied Mathematics*, 79 (2014) 562–570.
<https://academic.oup.com/imamat/article-abstract/79/3/562/819396?login=true>

Inverse Problems

1. **J.Kokila** and M. Thamban Nair, Fourier truncation method for the non homogeneous time fractional backward heat conduction problem, *Inverse Problems in Science and Engineering*, 28 (2020) 402–426.
<https://www.tandfonline.com/doi/full/10.1080/17415977.2019.1580707>
2. **J.Kokila**, Modified quasi boundary value method for multi-dimensional fractional non homogeneous fractional diffusion problem, *Mathematical Methods in the Applied Sciences*, 44 (2021) 8363–8378.
<https://onlinelibrary.wiley.com/doi/10.1002/mma.6102>

Fractional Modeling

1. **J.Kokila**, M. Vellappandi, D Meghana and V Govindaraj, Optimal Control Study on Michaelis Menten Kinetics - A Fractional Version, **Mathematics and Computers in Simulation**, 210 (2023) 571–592.
<https://www.sciencedirect.com/science/article/abs/pii/S0378475423001386>
2. Vellappandi, **J.Kokila** and V Govindaraj, Optimal control on fractional enzyme kinetics with inhibitors, **Journal of Biological Systems**, 32 (2024) 503–527.

<https://www.worldscientific.com/doi/epdf/10.1142/S0218339024500189>

PROFESSIONAL DEVELOPMENT ACTIVITIES

- ◆ Dr Kokila J coordinated the seminar series on Dynamical Systems: Control and Numerics at the Department of Statistics and Applied Mathematics, Central University of Tamil Nadu during 5-8, April 2024.
- ◆ Attended the Online Inverse Problem Seminar on 'Inverse Problems for Graph' delivered by Prof. Matti Lassas, University of Helsinki and organized by University of California Irvine, March 30, 2023.
- ◆ Attended the International Conference on fractional Calculus: Theory, Applications and Numerics (online) organized by Department of Mathematics, National Institute of Technology Puducherry, Karaikal, January 27-29, 2023.
- ◆ Participated in the Faculty Induction program (online) organized by UGC-HRDC, University of Madras for 30 days from 09-11-2022 to 08-12-2022.
- ◆ Participated in the International Faculty Development Programme organized by Central University of Tamil Nadu, Thiruvavur on March 30, 2021.
- ◆ Participated in the Five Day International Webinar on Dynamical Systems and its Applications (IWDSA 2020) organized by Department of Applied Mathematics, Bharathiar University, Coimbatore 641 046 during Aug 17-21, 2020. (Virtual Mode)
- ◆ Participated in the International conference in Conjunction with 15th Biennial Conference of ISIAM, Bharathiar University, Coimbatore, Dec 5-7, 2019.
- ◆ Participated in the National Seminar on Measure Theory, Department of Mathematics, Government College Chittur, Palakkad, Dec 4-5, 2018.
- ◆ Participated in the International Conference on Nonlinear Dynamical Systems, Department of Mathematics, Bharathiar University, Coimbatore, Mar 24-26, 2016.

- ◆ Participated in the National Seminar on Fractional Calculus: Theory & Applications, Department of Mathematics, University of Pune, Pune, Nov 5-7, 2012.

INVITED TALK

1. Dr Kokila J. delivered an invited lecture on Fractional Differential Equations to the Mathematics Research Scholars, Vellore Institute of Technology Chennai on Oct 6, 2020 (Virtual Mode).
2. Dr Kokila J. delivered an invited talk in the Second National Conference on Control and Inverse Problems held at Central University of Tamil Nadu, Thiruvarur on March 1-2, 2019.
3. Dr Kokila J served as Chief guest for the inauguration of the Delta Mathematics Association as part of the PI Day Celebration conducted by the Department of Mathematics, NIT Puducherry, Karaikal on March 14, 2024.
4. Dr Kokila delivered an invited talk on 'Fractional Modeling in Biochemical Reaction' as part of the PI Day Celebration conducted by the Department of Mathematics, NIT Puducherry, Karaikal on March 14, 2024.

RESEARCH VISIT

1. Visited Indian Institute of Technology Palakkad to explore avenues of research collaboration in Fractional Elliptic Problems on Jan 6-9, 2020.
2. Visited Indian Institute of Technology Madras to make research collaboration and discussions on the final draft of the manuscript with Prof. M. Thamban Nair from July 27-28, 2018.
3. Visited Indian Institute of Technology Madras to make research collaboration and discussions on the Fourier truncation method for the backward fractional diffusion problems with Prof. M. Thamban Nair from March 6-25, 2018.