

**Dr. Mohammad Ali Khan**  
Assistant Professor  
Department of Mathematics  
Ramananda College, Bishnupur  
Bankura, West Bengal, India  
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## **AREAS OF INTEREST**

- Nonlinear Dynamics and Chaos
- Multistability
- Mathematical Biology
- Climate Dynamics

## **EDUCATION**

### [Doctor of Philosophy \(Ph.D.\) in Applied Mathematics](#)

Topic : **Chaos Control, Chaos Synchronization and Its Application**  
Institute : **University of Calcutta**  
Awarded date : 2015

### [Master of Science \(M. Sc.\) in Applied Mathematics with Oceanology and Computer Programming](#)

Major : **Applied Mathematics**  
Institute : **Department of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University**  
Year of Passing : 2003

### [Bachelor of Science \(B.Sc.\) in Mathematics](#)

Major : **Mathematics (Hons.), Physics (P) & Statistics (P)**  
Institute : **Midnapore College, Vidyasagar University**  
Year of Passing : 2001

### Higher Secondary (H.S) in Science

Major : Bengali, English, Mathematics, Physics Chemistry &  
Biology  
Institute : WBCHSE  
Higher Secondary : 1997

### Secondary (M.P)

Major : Bengali, English, Mathematics, Physical Science,  
Life Science, History, Geography  
Institute : WBBSE  
Higher Secondary : 1995

### ACADEMIC ACHIEVEMENTS

**NET (CSIR)-2004**

### RESEARCH EXPERIENCE

<b>From</b>	<b>To</b>	<b>Name and Address of Company / Organization</b>	<b>Position held</b>
2009	2015	Dept. of Applied Mathematics, University of Calcutta, Kolkata, India	<b>Research Scholar</b>
2015	Till Date	Dept. of UG & PG Mathematics, Ramananda College, Bankura University, Bankura	<b>Assistant Professor</b>

### TEACHING EXPERIENCE

- 1. Assistant Professor in Mathematics at Ramananda College, Bishnupur under Bankura University from 10.02.2015 to till now.*
- 2. Guest Faculty in PG Mathematics at SKBU, Purulia from March 2015 to April 2016.*
- 3. Guest Faculty in PG Mathematics at Bankura University, Bankura from 27.08.2018 to 31.12.2018 & 05.02.2019 to till now.*

## **ONGOING MAJOR RESEARCH PROJECT**

**Project Title: “Study of multistability of discrete neuronal model”,**

**Memo No. 232(Sanc)/ST/P/S&T/16G-32/2018, Date: 20/02/2019, Sanctioned Amount:**

**Rs. 760800/- (WBDST)**

## **RESEARCH GUIDANCE**

**Acting as Research Supervisor in Mathematics at Bankura University, Bankura, West Bengal for the following research Scholars**

**1. Name of scholar: *Ms. Debjani Maity***

**Research Topic: *Multistablity and spatiotemporal synchronization of different chaotic systems***

**2. Name of scholar: *Mr. Joydev Ghosh***

**Research Topic: *Chaos control and chaos synchronization activity of different nonlinear dynamics with various application***

## **ADMINISTRATIVE EXPERIENCE**

- **Acting as member of different sub-committees at Ramananda College, Bishnupur, Bankura,**
- **Serve as Convener, Paper Setter and Examiner for UG Examination, for the subject of Mathematics, conducted by Bankura University.**
- **Serve as Paper Setter and Examiner for UG Examination, for the subject of Mathematics, conducted by the Garhbeta College, Paschim Medinipore.**
- **Serve as Paper Setter for UG Examination, for the subject of Mathematics conducted by the SKBU, Purulia.**
- **Serve as Examiner for UG Examination, for the subject of Mathematics, conducted by the University of Burdwan.**
- **Serve as Paper Setter and Examiner for PG Semester Examination, for the subject of Mathematics, conducted by Bankura University.**
- **Functioned as Nodal Officer of Ramananda College, Bishnupur, for AISHE.**
- **Functioned as one of the members of PG Board of Studies in Mathematics at Bankura University.**

## PUBLICATIONS

2020

Khan MA, Mazumdar HP and Jabeen SD; Anti-synchronization phenomenon of discrete chaotic maps using linear transformations. Journal of Information and Optimization Sciences, **TAYLOR & FRANCIS**, 2020 DOI: 10.1080/02522667.2017.1321766

2019

Khan MA, Maity D and Jabeen SD; Spatiotemporal synchronization in asymmetrically bidirectionally coupled neurons over a complex network, International Journal of Modern Physics B **WORLD SCIENTIFIC**, 2019, 33(19) 195023.

Sarkar JK, Khan MA and Das B; Complexity of spatiotemporal activity of Gaussian map through random link, Journal of Appl. Nonlinear Dynamics, 2019, 8(4) 667-675.

Ganguly A, Banerjee A, Mandal A, Khan MA, Mohapatra PKD; Isolation and characterization of Bacteria from the intestine of *Clarias batrachus* for probiotic organism, Proc. Zool. Soc. **SPRINGER** 2019, 72(4) 411-419.

Khan MA, Maity D and Jabeen SD; Spatiotemporal synchronization of diffusively coupled modified logistic map under complex network. **SPRINGER**, 2019 (Accepted).

Chakraborty SP and Khan MA; Conflicts of Antibiotic Resistant Bacteria, Acta Scientific Microbiology, 2019, 2(5) 161-162.

2018

Khan MA, Nag M and Poria S; Multistability in coupled different dimensional dynamical systems, Pram. J. of Phys., **SPRINGER**, 2018, 91(6)89.

2017

Khan MA, Nag M and Poria S; Design of multistable systems via partial synchronization, Pram. J. of Phys., **SPRINGER**, 2017, 89:19.

Khan MA, Bera S and Mazumdar HP; Generalized anti-synchronization of different coupled hyperchaotic systems via linear transformation, Bulg. J. of Phys, 2017 44:231-244

Maity D, Khan MA, Sahoo B and Tarai A; A generalized anti-synchronization of discrete chaotic maps via linear transformations, Int. J. of Nonlinear Sc, 2017, 24:44-52.

**Khan MA**; Mixed Synchronization Scheme for Coupled Different Dimensional Dynamical Systems. Int. J. of Appt. Math and Compt., **SPRINGER**, **2017**, DOI: [10.1007/s40819-016-0197-0](https://doi.org/10.1007/s40819-016-0197-0).

Ganguly A, Mandal A, **Khan MA**, Dutta TK, Raha S, Mohapatra PKD; Study of Physico-chemical parameters, planktonic diversity and bacterial load of *Clarias batrachus* cultivation pond at Bankura, WB,India, Int. Res. J. of Bio. Sciences, **2017**, **6(11)**,1-7

## 2016

**Khan MA** and Sahoo B; Temporospatial synchronization of discrete Logistic map through complex network., Optik-Int. J. of light & electron optics, **ELSEVIER**, **2016**, **127**: 1526-1531.

## 2015

**Khan MA**, Sahoo B and Mondal AK; Control of chaos to obtain periodic behaviour via nonlinear control, Proceedings of the National Academy of Sciences, India Section A: Physical Science, **SPRINGER**, **2015**, **85**: 143-148.

**Khan MA**; Generalized lag anti-synchronization of coupled chaotic systems, J. of Dyn. Sys. & Geo. Theos., **TAYLOR & FRANCIS**, **2015**, **13**: 137-148.

**Khan MA**, Ghosh J and Sahoo B; Controlling chaos in a food chain model through threshold harvesting, Fish. & Aqua. J, **2015**, **6**: 142.

**Khan MA**; Lag anti-synchronization of delay coupled chaotic systems via a scalar signal, DGDS, **BALKAN SOCIETY OF GEOMETERS**, **2015**, **17**: 72-80.

## 2013

**Khan MA** and Poria S; Projective synchronization of chaotic systems with bidirectional nonlinear coupling. Pram. J. of Phys., **SPRINGER**, **2013**, **81**: 395-406.

Poria S, **Khan MA** and Nag M; Spatiotemporal synchronization of coupled Ricker maps over a complex network. Phys. Scr., **IOP SCIENCE**, **2013**, **88**: 015004.

**Khan MA**; Different synchronization schemes for chaotic Rikitake systems. Int. J. Appl. Mech. & Engg. **VERSITA**, **2013**, **18**: 383-393.

Tarai A and **Khan MA**; Projective synchronization of chaotic systems via backstepping design, Int. J. Appl. Mech. & Engg. **VERSITA**, **2013**, **18**: 383-393.

2012

Khan MA and Poria S; Generalized synchronization of Nuclear spin generator system and the application in secure communication, J. of Dyn. Syst. & Geo. Theos., **TAYLOR & FRANCIS**, 2012, 10: 53-59.

Pal SN and Khan MA; Synchronization of coupled chaotic systems using active control, Int. J. Appl. Mech. & Engg. **ZIELONA GORA, POLAND**, 2012, 17: 1347-1355.

Khan MA, Pal SN and Poria S; Generalized anti-synchronization of different chaotic systems. Int. J. Appl. Mech. & Engg. **ZIELONA GORA, POLAND**, 2012, 17: 83-89.

Khan MA and Poria S; Generalized synchronization of bidirectionally coupled chaotic systems. Int. J. of Appl. Math. Res., **SCIENCE PUBLISHING CORPORATION**, 2012, 11: 303-313.

Khan MA; Synchronization of different 3D chaotic systems by generalized active control, J. of Inf. & Comp. Sc., **WORLD ACADEMIC UNION**, 2012, 7: 272-283.

2011

Khan MA, Mondal AK and Poria S; Three control strategies for unified chaotic systems. Int. J. Applied Mech. & Engg., **ZIELONA GORA, POLAND**, 2011, 16: 597-608.

2009

Khan MA and Mondal AK, Generalized chaos synchronization of coupled Rossler systems, Bull. Cal. Math. Soc., 2009, 101: 197-204.

**LIST OF PARTICIPATION AS WELL AS PRESENTATION IN SEMINARS, CONFERENCE, WORKSHOP**

2020

1. Actively participated in National Webinar on “Mathematical Model on Covid-19” organized by Department of Mathematics, Achhruram Memorial College, Jhalda, Purulia on 19<sup>th</sup> June 2020.
2. Actively participated in National Webinar on “Application of Differential Equations” organized by Department of Mathematics, Kongunadu Arts and Science College, Coimbatore, Tamilnadu on 4<sup>th</sup> June 2020.

3. *Presentation of the paper 'Different Chaos Control and Synchronization among Different Dimensional Neuronal Systems' in three days International Seminar on Systematic Approach to Modern Science and its Philosophical Impacts organized by Department of Physics, Chemistry, Mathematics, Computer Science and Philosophy, Bajkul Milani Mahavidyalaya in collaboration with Prabhat Kumar College, Contai, Purba Medinipore held on 06.02.2020-08.02.2020.*
4. *Presentation of the paper 'Dynamics of Biosystems in the Presence of Inhibitory Effect of the Prey and with Additional Food Suppliments' in two days International Seminar on Classical to Quantum Computing organized by Department of Mathematics, Egra Sarada Shashi Bhusan College held on 15.02.2020 &16.02.2020*
5. *Presentation of the paper 'Determination of Generalized Synchronization among Different Dimensional Chaotic System' in two day State Level Seminar on Science in the 21<sup>st</sup> Century for a Sustainable Future organized by Science Departments, SKBU, Purulia held on 12<sup>th</sup> February & 13<sup>th</sup> February, 2020.*

## **2018**

6. Actively participated in the workshop on Promotion of Research Climate in the Institution, organized by IQAC, Ramananda College in association with Research Sub-Committee , Ramananda College on 8 th March 2018.
7. Actively participated in the workshop on Matlab and R Training, organized by CPEPA, held at N.R.Sen Hall, University of Calcutta on 10th and 11th March 2018.
8. *Presentation of the paper 'Control of Disease Affected Population Dynamics using Different type of Controller ' at the National Seminar on Recent Approaches of Mathematical Science in Advancement of Biotechnology, Organized by Department of Mathematics and Botany, Ramananda College on 28th March 2018*
9. Actively participated in the one day State level seminar on 'Environmental Awareness', organized by NSS unit Ramananda College on 20th December, 2018.

## **2017**

10. Actively participated in one day state level seminar "Science & Technology for National Development" organized by Department of Physiology and Department of Nutrition, Ramananda College, Bishnupur in Collaboration with Indian Science Congress Association, Kolkata Chapter on 11th March, 2017.

11. *Presentation of the paper 'Spatiotemporal synchronization...quadratic map ' at the National Seminar on Advanced Level of Mathematical Science, Organized by Department of Mathematics, Raja N.L. Khan Women's College & Chandrakona Vidyasagar mahavidyalaya on 09<sup>th</sup> & 10<sup>th</sup> February 2017*
12. *Actively participated in the workshop on C-programming organized by the Council for UG studies in Arts, Science and Commerce and the Department of Mathematics, The University of Burdwan on and from 22.02.2017-28.02.2017.*

## **2015**

13. *Presentation of the paper 'Impact of FDI on Indian Economy : In the light of Financial Mathematics' at the National Seminar on Impact of Foreign Direct Investment on Indian Economy Organized by Department of Commerce, Vivekananda Sata Varshiki Mahavidyalaya, Medinipur, Paschim Medinipur on 15<sup>th</sup> and 16<sup>th</sup> Octobar, 2015.*

## **2012**

14. *Presentation of the paper 'Chaos synchronization of different non-identical chaotic systems' at the National Seminar on Recent Advances in Technique of Applied Mathematics: Computational and Analytical Oraganized by Department of Mathematics,University of Calcutta during March 14-16,2012.*

## **2011**

15. *Presentation of the paper ' spatiotemporal dynimics of Rickar map over a Ring network' in the International Conference on Frontiers in Applied Mathematics and Computational Aspects, Organized by Department of Applied Mathematics,University of Calcutta during March 15-17,2011.*

## **2010**

16. *Actively participated in the workshop on Astrophysics and Cosmology, jointly organized by Department of Applied Mathematics, The University of Calcutta & University centre for Astronomy and Astrophysics during January 13-14,2010.*
17. *Presentation of the paper 'Threshold mechanism of different chaotic systems' at the national seminar on Interdisciplinary problems in Nonlinear Dynamics: computational and other Technique, Organized by Department of Applied Mathematics, University of Calcutta during February 24-25,2010*



**2008**

18. *Presentation of the paper ‘ Controlling chaos in the unified chaotic system at the national seminar on Generalizations and Approximations in Mathematics, Organized by Department of Mathematics, Siksha-Vhavana,Visva-Bharati ,Santiniketan, during March 28-29,2008.*

## **BOOK**

**Author: Dr. Mohammad Ali Khan**  
**Chaos Control, Chaos Synchronization and Its Application**  
**ISBN No. 978-3-659-86259-5**

## **MEMBER OF PROFESSIONAL BODIES**

**Member of Calcutta Mathematical Society, Kolkata**

## **PERSONAL DETAILS**

**Date of Birth** : 29<sup>th</sup> February 1980

**Marital Status** : Married

**Nationality** : Indian

**Current Status** : **Assistant Professor**

**Department of UG & PG Mathematics,**

**Ramananda College, Bishnupur,**

**Bankura-722122, INDIA**

**Present Address** : S/O- Md. Piar Ali Khan  
Vill- Baharasole, P.O-Selampore  
Dist-Hooghly, Pin-712122, WB

**Permanent Address** : Do

**Languages Known** : Bengali and English

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