

Brief Curriculum vitae

Name : **Ranjit Kumar Upadhyay**
Date of Birth : 01-01-1967
Sex : Male
Nationality : Indian
Present Position : Professor
Mailing Address : Department of Applied Mathematics
Indian School of Mines, Dhanbad- 826 004.
Phone Number +91-326-2235582 (R)
Mobile No: 09431126485
E-mail: ranjit_ism@yahoo.com; ranjit.upadhyay@gmail.com

1. Educational Qualification:

Degree	Institute	Year	Major subject	Division
Ph. D*	IIT Delhi	2000	Applied Mathematics, Mathematical Ecology, Nonlinear Dynamics & Chaos.	Ist (8.33, CPI)
M. Sc	IIT Kanpur	1992	Pure and Applied Mathematics Differential Equations, Mathematical Modeling	Ist (6.9, CPI)
B. Sc (Hons)	Bhagalpur University	1990	Mathematics	Ist (74.87%)

(IIT: Indian Institute of Technology)

***Thesis Title: Dynamical system studies in model ecosystems.**

Supervisor: Dr. S. R. K. Iyengar, Professor and Former Head, Department of Mathematics, I.I.T., New Delhi, India, 110016.

2. Areas of Interest

Ordinary and Partial differential equations, Mathematical and Chaos Modelling, Mathematical Ecology and Nonlinear dynamics, Dynamical systems, Disease dynamics, Spatio-temporal pattern formations in Ecology. Patterns and waves in Ecological systems.

3. Teaching Experience [14 years]

Duration	Organisations	Courses Taught
Professor 31 March 2010 – till date	Indian School of Mines, Dhanbad	Mathematical Ecology, Nonlinear dynamics and Chaos, Mathematical modeling, Integral Calculus, Integral Transform & PDE.

Associate Professor 31 March 2006 - 30 March 2010	Indian School of Mines, Dhanbad	Mathematical Ecology, Nonlinear dynamics and Chaos, Mathematical modeling, Integral Calculus, Integral Transform & PDE.
Assistant Professor 31 March 2003 - 30 March 2006	Indian School of Mines, Dhanbad	Mathematical Ecology, Nonlinear dynamics and chaos, Mathematical modelling, Numerical Analysis.
Senior Lecturer 31 May 2000 - 30 March 2003	Indian School of Mines, Dhanbad	Integral Calculus, Differential equations, Fortran Programming & C Mathematical Modelling
Lecturer 25 July 1997 – 27 May 2000	SBS College of Engg. & Technology, Ferozpur	Differential equations, Numerical Analysis, Laplace transformation Matrix Theory

4. Research Experience [19 years]

1. Worked as **Project Assistant** in project# DEFW/MATH/8626 entitled “*Dispersion of Air pollutant and its control by Green belt*” with Prof. J.B. Shukla, Department of Mathematics, IIT Kanpur. (May 1992-June 1993).
2. Worked as **Senior Research Assistant** in the research project # RP-034/90 entitled Development of Dynamical statistical model for local weather prediction over northwest India for operational use in IAF” with Prof. U. C. Mohanty, CAS, IIT Delhi. (July 1993- June 1994).
3. Worked as **JRF** and **SRF** with Prof. S.R.K. Iyengar in Department of Mathematics, IIT Delhi (July 1994- July 2000).
4. Summer **Visiting Fellow** in EOBU, Jawaharlal Nehru Center for Advances Scientific Research, Jakkur, and Bangalore (Summer 2002).
5. **Visiting Scientist** in Biomathematics Group, Indian Statistical Institute Kolkata (Summer 2004).
6. **Visiting Research Fellow** under Indo-Hungarian Educational exchange programme in Eötvös Lorand University, Faculty of Science, Institute of Biology, Department of Plant Taxonomy and Ecology (May- June, 2010) (Professor Scheuring Istvan).

5. Research Project Undertaken

1. **Fast track Young Scientist** Project No. SR/FTP/MS-18/2001 from **DST, New Delhi** (Rs. **3.24** Lakh) (Status: Completed).
Project Title: *Chaos, Synchrony & Persistence in spatially extended ecological systems.*
 2. Minor Research Project from **Indian School of Mines, Dhanbad** (Rs. **40,000**) (Status: Completed).
Project Title: *Functional Role of chaos and its implication in ecosystem stability.*
 3. R & D Project No. UGC (32)/2008-09/220/AM. From **UGC, New Delhi** (Rs. **7.26** Lakhs) (Status: Under Progress).
Project title: *Modeling the dynamic nature of ecological complexity: A mathematical and stochastic Approach.*
 4. R & D Project No. UGC (19) 2007-08/193/AM from **UGC, New Delhi** (Rs. **5.62** Lakhs) with Prof. G.N. Singh (PI) (Status: Completed).
Project Title: *Search of Good Rotation Pattern- To Address the Estimation and Forecasting Problems.*
 5. Consultancy Project from **State Pollution Control Board, Orissa** (Rs. **52.24** Lakhs) with CME. (Status: Completed).
 6. R & D Project from **DST, New Delhi** (Rs. **39.90** Lakhs) with Deptt. of Applied Physics. (Status: Under progress)
Project Title: *High Resolution Retinal Imaging of Living Eye through Adaptive Optics.* (with Prof. A.K. Nirala and Prof. P.S. Gupta)
- 6. Dissertations supervised (See Detail in tabular form in section 11. POST GRADUATION THESIS SUPERVISION)**
1. M. Sc (Mathematics & Computing) – **11**(Completed);
 2. M. Phil – **05**(Completed) **01** (Under progress);
 3. Ph. D – **01** (Completed) -**03** (Under progress).

7. Award and Honours

1. Qualified GATE- Examination for Junior research fellowship held in March 1993.
2. Fast track Young Scientists research Award 2001-02, *Department of Science & Technology Delhi, Government of India.*

3. Summer **Visiting Fellow** in Evolutionary and Organismal biology Unit, *Jawaharlal Nehru Centre for Advances Scientific Research*, Jakkur, Bangalore in summer 2002.
4. Delivered Invited talk in an “*International conference on Nonlinear phenomena*” organized by Nonlinear studies group, Department of Mathematics, *IISC Bangalore* during 5-10 January 2004.
5. **Visiting Scientist** in Biomathematics group, *Indian Statistical Institute Kolkata* in summer 2004.
6. **Post Doctoral Fellowship** in the program of Non-linear dynamics and chaos modeling for Ecological systems, HUST, Wuhan, P. R. China during September 2005-September 2008 (Not availed).
7. **Visiting Research Fellow** under Indo-Hungarian Educational exchange programme in Eotvos University, Budapest, Hungary. (Presently in Budapest, Hungary, May- June, 2010).
8. **Member of Editorial Board** of Journal of Nonlinear Systems and Applications (JNSA).
9. **Member of EB and GC**, a highest policy decision making body of the Institute during 2008-2009.
10. **Member of M.Sc/M.Sc Tech examination committee** during the period 2008-2010.

8. Short-term courses attended on

1. Summer School on Advanced real analysis and its application to partial differential equations during May 18- June 18, 1992, in IISc, Bangalore (Jointly with TIFR)
2. Methods in Behavioural Ecology (Course Director- Prof. R. Gadakar) during Dec 17-27, 2001 in CES, IISC Bangalore.
3. Training programme on Theoretical and Numerical aspects of ODEs during Dec 15-24, 2004 in Department of Mathematics, IIT Guwahati.

9. Reviewer for the journals

- (i) American Naturalist
- (ii) Mathematics and computer in Simulations
- (iii) Nonlinear Analysis: Modelling and Control
- (iv) Nonlinear Analysis: Real world Applications.
- (v) Journal of Theoretical biology.
- (vi) Applied Mathematical Modelling.
- (vii) Applied Mathematics and computation.

10. POST GRADUATION THESIS SUPERVISION:

Serial No.	Name of the student/research Scholar	Title of thesis	Doctorate or Master's Level	Year of Completion	Co-guide (s) if any
1.	Mr. Abhay Kumar	Modelling Ecological Systems.	M.Sc (Mathematics and Computing)	2003	
2.	Mr. Raju Datta	Chaos and Crisis in Ecological systems.	M.Sc (Mathematics and Computing)	2004	
3.	Miss Archana Bhatta	Modelling of Epidemiological Systems.	M.Sc (Mathematics and Computing)	2005	
4.	Mr. Tanmay Joarder	Dynamical studies of SEIR Epidemic model.	M.Sc (Mathematics and Computing)	2005	
5.	Mr. Dipanjan Ray Chaudhuri	Dynamics and Synchronization of three and four dimensional model systems.	M.Sc (Mathematics and Computing)	2006	
6.	Mr. Debasish Paul	Modelling Terrorism: A Global Challenge	M.Sc (Mathematics and Computing)	2007	
7.	Miss Purnima Hedao	Exploring self-similar structures in Mandelbrot and Julia sets	M.Sc (Mathematics and Computing)	2008	
8.	Miss Manorma Kumari.	New Algorithm for the study of Self-affine map: Application to Sierpinski Carpet	M.Sc (Mathematics and Computing)	2008	
9.	Miss Renuka Kumari	Nonlinear dynamics and chaos in Financial Market.	M.Sc (Mathematics and Computing)	2009	
10.	Mr. Sudarshan Dhua	Spatio-temporal dynamics of Eco-epidemiological models.	M.Sc (Mathematics and Computing)	2010	
11.	Mr. Anup Kumar Sharma	Modelling the spread of Swine flu and predicting outbreak diversity.	M.Sc (Mathematics and Computing)	2010	

10.	Miss Nitu Kumari	Exploring the Dynamical Nature of Ecological Complexity: A Dynamical System Approach.	M.Phil(Applied Mathematics)	2006	
11.	Mr. Vikas Kumar	A study of three-species model food chains with predator interference.	M.Phil(Applied Mathematics)	2007	
12.	Mr. Nilesh Kumar Thakur	Modelling Ecological systems with mutual interference and time delay.	M.Phil(Applied Mathematics)	2007	
13.	Mr. Pankaj Kumar	Modelling the spatiotemporal complexity of a wetland system.	M.Phil(Applied Mathematics)	2008	
14.	Miss Anita Kumari	Spatiotemporal Patterns formation in spatial predator-prey Systems.	M.Phil(Applied Mathematics)	2009	
15.	Dr. Nitu Kumari	Modelling the dynamical complexity in diffusion driven ecological systems.	Ph.D(Applied Mathematics)	2009 (Completed)	
16.	Mr. Nilesh Kumar Thakur	Modelling the dynamics nature of Ecological complexity: A mathematical and Stochastic Approach	Ph.D(Applied Mathematics)	(Under Progress)	
17.	Mr. S.N. Raw	Complex dynamics of Ecological systems: Models and Methods	Ph.D(Applied Mathematics)	(Under Progress)	
18.	Mr. S. Bhowmick	Modelling the spatiotemporal complexity of Eco-epidemiological systems	Ph.D(Applied Mathematics)	(Under Progress)	

R. K. Upadhyay

(R. K. Upadhyay)