




Faculty Details proforma for DU Web-site

Title Dr. First Name **Pratima** Last

Name

Title	Dr.	First Name	Pratima	Last Name	Rai	Photograph
Designation		Assistant Professor				
Address		Arthur 2, Flat no-101, Supertech Czar, sector - Omicron 1, Greater Noida, Uttar Pradesh, 201308				
Phone No	Office	01127666658				
Residence						
Mobile						
Email		prai@maths.du.ac.in				
Web-Page						
Educational Qualifications						
Degree		Institution			Year	
Ph. D		Panjab University, Chandigarh			2013	
M. Sc		Panjab University, Chandigarh			2008	
B. Sc		G. C. G 11, Chandigarh			2006	
Career Profile						
<p>1) Working as Assistant professor at the department of mathematics, University of Delhi since February 2014.</p> <p>2) Worked as Assistant Professor at Amity University, Noida, India from July 2012 to January 2014.</p> <p>3) Worked as Lecturer at “Shaheed Udham Singh college of Engineering and Technology” Mohali, Punjab, India for the semester July-December 2008.</p>						
Administrative Assignments						
<p>Member of various departmental committees such as moderation committee, anti-ragging committee, IQAC, website committee, placement cell , syllabus revision committee etc.</p> <p>Serving as Resident Tutor at the Rajiv Gandhi Hostel for Girls, Mukherjee Nagar, Delhi since Feb 2018.</p>						
Areas of Interest / Specialization						
Numerical Analysis, Differential equations, finite difference methods, finite element methods						
Subjects Taught						
Fluid dynamics, Complex analysis, Functional Analysis, Numerical methods for PDEs, Differential equations, Numerical methods for ODEs						
Research Guidance						

Currently having one Mphil and two Ph. D students. Also having one M. Phil student has completed her degree.

Publications Profile

- 1) Pratima Rai, Kapil. K. Sharma, Parameter uniform numerical method for singularly perturbed differential-difference equations with interior layer, *International Journal of Computer mathematics*, 88(16) (2011) 3416-3435 ISSN 0020-7160 (Print), 1029-0265 (Online).
- 2) Pratima Rai, Kapil. K. Sharma, Numerical analysis of singularly perturbed delay differential turning point problem, *Applied Mathematics and Computation*, 218 (2011) 3483-3498, ISSN: 0096-3003..
- 3) Pratima Rai, Kapil. K. Sharma, Numerical method for singularly perturbed differential-difference equations with turning point, *International Journal of Pure and Applied Mathematics*, 73(4) 2011, 451-470, ISSN 1311-8080 (printed version), ISSN 1314-3395 (on-line version)..
- 4) Pratima Rai, Kapil. K. Sharma, Numerical study of singularly perturbed differential-difference equation arising in the modeling of neuronal variability, *Computer and Mathematics with Applications* 63 (2012) 118-132, ISSN: 0898-1221.
- 5) Pratima Rai, Kapil. K. Sharma, Fitted mesh numerical method for singularly perturbed delay differential turning point problems exhibiting boundary layers, *International Journal of Computer mathematics* 89(7) 2012 944-961, ISSN 0020-7160 (Print), 1029-0265 (Online).
- 6) Pratima Rai, Kapil. K. Sharma, The numerical study of singularly perturbed differential-difference turning point problems: Twin boundary layers, *Proceedings of ENUMATH 2011, the 9th European Conference on Numerical Mathematics and Advanced Applications*, Leicester, September 2011, 285-292.
- 7) Kapil. K. Sharma, Pratima Rai, K. C. Patidar, A Review on Singularly Perturbed Differential Equations with Turning Points and interior Layers , accepted in *Applied Mathematics and Computation*, 219(22), 2013, 10575-10609, Elsevier, ISSN: 0096-3003.
- 8) Pratima Rai, Kapil. K. Sharma, Singularly perturbed convection-diffusion turning point problem with shifts. *Mathematical analysis and its applications*, 2015, 381-391, Springer Proc. Math. Stat., 143, Springer, New Delhi.
- 9) Pratima Rai, Kapil. K. Sharma, Singularly perturbed parabolic differential equations with turning point and retarded arguments. *IAENG Int. J. Appl. Math.* 45(4), 2015, 404-409.
- 10) Komal Bansal, Pratima Rai, Kapil K. Sharma, Numerical treatment for the class of time dependent singularly perturbed parabolic problems with general shift arguments. *Differ. Equ. Dyn. Syst.* 25(2) (2017) 327-346.

Conference Organization/ Presentations (in the last three years)

- 1) Participated in the conference "International conference on recent trends in mathematical analysis and its applications" held at IIT Roorkee from 21-23rd December 2014 and presented paper titled "Singularly perturbed convection-diffusion turning point problem with shifts".

- 2) Gave invited talk on “An epsilon-uniform fitted operator method for singularly perturbed delay differential turning point problem” in the workshop “Advance workshop on finite difference methods for differential equations” held at South Asian University from 13-17th March 2015.”
- 3) Participated in the conference “Indian Women Mathematicians 2015” held at Department of Mathematics, University of Delhi from April 2-4, 2015 and presented paper titled “Fitted operator finite difference scheme for a class of singularly perturbed differential difference turning point problems exhibiting interior layer.
- 4) Gave invited talk titled “Fitted operator finite difference scheme for singularly perturbed delay differential equations with turning” at the conference “Recent Advances in Theoretical and Computational Partial Differential Equations with Application” held at Panjab University Chandigarh from December 1-5, 2016.
- 5) Gave invited talk titled “Robust Numerical schemes for singularly perturbed turning point problems” at the “International Conference on Current Trends in Theoretical & Computational Differential Equations with Applications” held at South Asian University, Delhi from December 1-5, 2017.
- 6) Gave invited talk titled “Numerical approximation of singularly perturbed delay differential equations”, at the conference “International Conference on Non-linear differential equations- Theory, Modeling and Computations”, held at SRM University from 8-9th December, 2017.
- 7) Gave invited talk titled “A higher order ϵ uniform method for singularly perturbed parabolic turning point problems” at the “International Conference on Mathematical Modeling and Computation” held at South Asian University, Delhi from December 1-3, 2018.
- 8) Gave invited talk titled “Singularly Perturbed Delay Differential Equations with Boundary and Interior Layer” at the “4th International Conference on Recent Developments in Theory Computation” and Application of Differential Equations held at South Asian University, Delhi from January 21-23, 2019.
- 9) Presented a paper titled “ Numerical solution of singularly perturbed delay differential parabolic turning point problems” at the “ 25th International Conference on Difference Equations and Applications (ICDEA 2019)” held at UCL, London from June 24-28, 2019.

Research Projects (Major Grants/Research Collaboration)

- Got research grant of 1.2 lakh from Delhi University under grant no RC/2014/6820 for the project titled “Numerical methods for singularly perturbed time dependent differential difference equations”.

Awards and Distinctions

Association With Professional Bodies

Lifetime member of ISIAM (Indian Society for Industrial and Applied Mathematics)

Other Activities

Signature of Faculty Member