DR. RAMJIWARI
Assistant Professor
Indian Institute of Technology Roorkee
Roorkee-247667 (U.K.) India
Ph. No.: +91-8191957249
Email: ram1maths@gmail.com ; ram03fma@iitr.ac.in
Home Page: http://jiwari.com/

Research Interests:	**Contact Information:**
Numerical Analysis	House No. 59/7
Differential Quadrature Method	Ravindra Lok, IIT Roorkee
Haar Wavelets Analysis	Roorkee-247667, India
Finite Element Methods, Numerical Solution of PDEs	

ACADEMIC AND RESEARCH BACKGROUND

1. **Post Doc Fellow** (2013 to 2014)   **Institute of Industrial Mathematics, Federal University do Paraná, Brazil**

2. **Ph.D** (July 2010)   **Thesis Title:** Numerical Treatment of Some Partial Differential Equations using Differential Quadrature Method
Department of Mathematics
Indian Institute of Technology Roorkee, India

3. **M.Sc.** (2003-2005)   Kurukshetra University, Kurukshetra, India

PH.D. STUDENTS

1. **Mr. Vikas Kumar**   **Awarded 2014**
2. **Ms. Anjali Verma**   **Awarded 2015**
3. **Ms. Sunita Garhwal**   **Awarded 2017**
4. **Mr. Om Prakash Yadav**   **Awarded 2019**
5. **Mr. Sanjay Kumar**   Work under progress since July, 2016
6. **Mr. Sudhir Kumar**   Work under progress since July, 2016
7. **Mr. Jasbir Singh**   Work under progress since July, 2018

MASTER THESIS

1. **Ms. Aanchal Chopra** (Numerical solutions of Some Nonlinear PDEs using FEM, 2012)
2. **Ms. Rishu Singla (**Numerical solutions of Some Nonlinear PDEs using FDM, 2012**)**
3. **Ms. Harwinder Kaur**(Numerical solutions of Some Differential equations using B-Spline, 2012)
4. **Ms. Mandeep Kaur** (Numerical Solutions of Some Parabolic Partial Differential Equations Using Cubic B-Spline Collocation Method, 2013)

5. **Ms. Ramandeep Kaur** (Numerical Solutions and Stability of Some Partial Differential Equations Using Finite Difference Methods, 2013)
6. **Ms. Jyoti Sharma** (Exact Solutions of Some Partial Differential Equations Using $\left(G'/G\right)$-Expansion Method)
7. **Jyoti Sharma,** Exact Solutions of Some Partial Differential Equations Using (G'/G) Expansion Method, Thapar University, 2013.
8. **Kamna Dureja,** Cubic B-splines and their Applications, IITR 2016.
9. **Deepak Yadav,** Trigonometric Cubic B-spline and their Applications, IITR 2016.
10. **Kamal Chawla,** Differential Quadrature Methods and their Applications, IITR 2016.
11. **Pankaj Kumar,** Finite Difference Methods and Their Applications, IITR 2016.
12. **Prince Solanki,** Some Finite Difference Methods for solutions of Advection-Diffusion Equations, IITR 2017
13. **Akshay Deep,** Intelligent suggestions using extensive data analysis to increase productivity of representatives, IITR 2018
14. **Ajay Kumar**, Finite Difference Methods for Fishers' Equations, IITR 2018

LIST OF PUBLICATIONS
Articles published/accepted in refereed journals

1. Om Prakash Yadav and **Ram Jiwari,** A finite element approach for analysis and computational modelling of coupled reaction diffusion models, **Numerical Methods for Partial Differential Equations**, 35 (2) (2019) 830-850.
2. Om Prakash Yadav and **Ram Jiwari,** Some soliton-type analytical solutions and numerical simulation of nonlinear Schrödinger equation, **Nonlinear Dynamics**, 95 (2019) 2825-2836.
3. Sanjay Kumar, **Ram Jiwari** and R. C. Mittal, Meshfree algorithms based on radial basis functions for numerical simulation and to capture shocks behavior of Burgers' types problems, **Engineering Computations,** 36(4) (2019) 1142-1168.
4. Sanjay Kumar, **Ram Jiwari** and R. C. Mittal, Numerical simulation for computational modelling of reaction-diffusion Brusselator model arising in chemical processes, **Journal of Mathematical Chemistry,** 57 (2019) 149-179.
5. Om Prakash Yadav and **Ram Jiwari,** A finite element approach to capture Turing patterns of autocatalytic Brusselator model, **Journal of Mathematical Chemistry**, 57 (3) (2019) 769-789.
6. **Ram Jiwari,** Stefania Tomasiello and Francesco Tornabene, A numerical algorithm for computational modelling of coupled advection-diffusion-reaction systems, **Engineering Computations**, 35 (3) (2018) 1383-1401.
7. **Ram Jiwari,** H. S. Shukla, M Tamsir and V. K. Srivastava, A numerical algorithm for computation modeling of 3D nonlinear wave equations based on exponential modified cubic B-spline differential quadrature method, **International Journal of Computer Mathematics**, 95 (4) (2018) 752-766.

8. **Ram Jiwari,** Sukhveer Singh and Ajay Kumar, Numerical simulation to capture the pattern formation of coupled reaction-diffusion models, **Chaos, Solitons & Fractals,** 103 (2017) 422-439.

9. **Ram Jiwari,** Vikas Kumar, Ram Karan and A. S. Alshomrani, Haar wavelet quasilinearization approach for MHD Falkner–Skan flow over permeable wall via Lie group method, **International Journal of Numerical Methods for Heat & Fluid Flow**, 27 (6) (2017) 1332-1350.

10. Sapna Pandit, **Ram Jiwari**, K Bedi and M. E. Koksal, Haar wavelets operational matrix based algorithm for computational modelling of hyperbolic type wave equations**, Engineering Computations, 34 (8) (2017) 793-2814.**

11. A. Alshomrani, Sapna Pandit, A. K. Alzahrani, M. S. Alghamdi, **Ram Jiwari,** A numerical algorithm based on modified cubic trigonometric B-spline functions for computational modelling of hyperbolic type wave equations, **Engineering Computations,** 34 (4) (2017) 1257-1276.

12. Om Prakash Yadav and **Ram Jiwari**, Finite element analysis and approximation of Burgers'-Fisher equation, **Numerical Methods for Partial Differential Equations**, 33 (5) (2017) 1652-1677.

13. Maria A. De Rosaa, Maria Lippiello, **Ram Jiwari**, Stefania Tomasiello, A differential quadrature based procedure for parameter identification, **Applied Mathematics and Computation,** 290 (2016) 460-466.

14. M. Tamsir, V. K. Srivastava, **Ram Jiwari,** An algorithm based on exponential modified cubic B-spline differential quadrature method for nonlinear Burgers' equation, **Applied Mathematics and Computation,** 290 (2016) 111-124.

15. S. Garhwal and **Ram Jiwari**, Conversion of fuzzy automata into fuzzy regular expressions using transitive closure, **Journal of Intelligent & Fuzzy Systems**, 30 (6) (2016) 3123-3129.

16. S. Garhwal and **Ram Jiwari**, Parallel fuzzy regular expression and its conversion to epsilon-free fuzzy automaton, **The Computer Journal**, 59(9) (2016) 1383-1391.

17. A. Verma and **Ram Jiwari,** Cosine expansion based differential quadrature algorithm for numerical simulation of two dimensional hyperbolic equations with variable coefficients, **International Journal of Numerical Methods for Heat & Fluid Flow**, 25 (7) (2015) 1574-1589.

18. **Ram Jiwari,** Lagrange interpolation and modified cubic B-spline differential quadrature methods for solving hyperbolic partial differential equations with Dirichlet and Neumann boundary conditions, **Computer Physics Communications**, 193 (2015) 55-65.

19. **Ram Jiwari**, A hybrid numerical scheme for the numerical solution of the Burgers' equation, **Computer Physics Communications,** 188 (2015) 59-67.

20. Vikas Kumar, **Ram Jiwari** and R K Gupta, Exact and numerical solutions of coupled short pulse equation with time-dependent coefficients, **Nonlinear Dynamics, 79 (1)(2015) 455-464.**

21. Anjali Verma, **Ram Jiwari** and M. E. Koksal, Analytic and numerical solutions of nonlinear diffusion equations via symmetry reductions, **Advances in Difference Equations**, **DOI:10.1186/1687-1847-2014-229 (2014).**

22. **Ram Jiwari,** R.K. Gupta and Vikas Kumar, Polynomial differential quadrature method for numerical solutions of the generalized Fitzhugh-Nagumo equation with time-dependent coefficients, **Ain Shams Engineering Journal, 5 (2014) 1343-1350.**

23. Anjali Verma, **Ram Jiwari** and Satish Kumar, A numerical scheme based on differential quadrature method for numerical simulation of nonlinear Klein-Gordon equation, **International Journal of Numerical Methods for Heat and Fluid Flow, 24 (7) (2014) 1390-1404**.

24. **Ram Jiwari** and Jinyun Yuan, A computational modeling of two dimensional reaction-diffusion Brusselator system arising in chemical processes, **Journal of Mathematical Chemistry, 52 (2014) 1535-1551.**

25. Vikas Kumar, **Ram Jiwari** and R K Gupta, Lie Group analysis, numerical and non-traveling wave solutions for the (2+1)-dimensional Diffusion–Advection equation with variable coefficient, **Chinese Physics B, 23 (3) (2014) 030201.**

26. Vikas Kumar, **Ram Jiwari** and R K Gupta, Numerical Simulation of Two Dimensional Quasilinear Hyperbolic Equations by Polynomial Differential Quadrature Method, **Engineering Computations, 30 (7) 2013, 892-909.**

27. Vikas Kumar, **Ram Jiwari** and R K Gupta, Painlevé Analysis, Lie Symmetries and Exact Solutions for Variable Coefficients Benjamin-Bona-Mahony-Burger (BBMB) Equation, **Communications in Theoretical Physics, 60 (2013) 175–182.**

28. Vikas Kumar, **Ram Jiwari** and R K Gupta, Comparative Study of Travelling Wave and Numerical Solutions for the Coupled Short Pulse (CSP) Equation, **Chinese Physics B, 22 (5) (2013) 050201.**

29. **Ram Jiwari**, R.C. Mittal and K K Sharma, A numerical scheme based on weighted average differential quadrature method for the numerical solution of Burgers' equation, **Applied Mathematics and Computation, 219 (2013) 6680–6691.**

30. R C Mittal, **Ram Jiwari** and K K Sharma, A numerical scheme based on differential quadrature method to solve time dependent Burgers' equation, **Engineering Computations, 30 (1) (2013) 117-131.**

31. **Ram Jiwari,** Haar wavelet quasilinearization approach for numerical simulation of Burgers' equation, **Computer Physics Communications, 183 (2012) 2413-2423**.

32. R.C. Mittal and **Ram Jiwari**, A differential quadrature method for solving Burgers'-type equation, **International Journal of Numerical Methods for Heat and Fluid Flow, 22 (7), (2012), 880-895.**

33. **Ram Jiwari,** S. Pandit and R C Mittal, Numerical simulation of two-dimensional sine-Gordon solitons by differential quadrature method, **Computer Physics Communications, 183 (2012) 600-616.**

34. **Ram Jiwari,** S. Pandit and R C Mittal, A Differential quadrature algorithm to solve the two dimensional linear hyperbolic telegraph equation with Diriclet and Neumann boundary conditions, **Applied Mathematics and Computation, 218 (2012) 7279–7294.**

35. R.C. Mittal and **Ram Jiwari**, Differential quadrature method for Numerical Solution of coupled viscous Burgers' equations, **Int. J. for Comput. Methods in Eng. Science and Mech**, 13 (2012), 1-5.

36. D. Sharma, **Ram Jiwari, and** Sheo Kumar, A comparative study of Modal matrix and finite elements methods for two point boundary value problems, **Int. J. of Appl. Math. and Mech. 8 (13) (2012), 29-45.**

37. **Ram Jiwari,** Sapna Pandit and R C Mittal, A differential quadrature algorithm for the numerical solution of the second-Order one dimensional hyperbolic telegraph equation, **Int J of Nonlinear Sciences, 13 (3) (2012), 259-266.**

38. **Ram Jiwari,** Dinkar Shrma and Sheo Kumar**,** Numerical solutions of two point boundary value problems using Galerkin-Finite element method, **Int J of Nonlinear Sciences, 13 (2)(2012), 204-210.**
39. R.C. Mittal and **Ram Jiwari,** A Numerical Scheme for singularly perturbed Burger-Huxley Equation, **J. Appl. Math. & Informatics, 29 (2011), No. 3-4, 813-829.**
40. R.C. Mittal and **Ram Jiwari,** A Numerical scheme for some nonlinear differential equations models in Biology, **Int. J. for Comput. Methods in Eng. Science and Mech., 12 (3), (2011), 134-140.**
41. R.C. Mittal and **Ram Jiwari**, Numerical study of two-Dimensional reaction-diffusion Brusselator system, **Appl. Math. Comput., 217 (12) (2011), 5404-5415.**
42. **Ram Jiwari,** Dinkar Shrma and Sheo Kumar**,** Galerkin-finite element method for the numerical solution of advection-diffusion equation**, IJPAM, 70 (3) (2011), 389-399.**
43. R.C. Mittal and **Ram Jiwari**, Numerical study of Burger-Huxley equation by differential quadrature method, **Int. J. of Appl. Math. and Mech., 5(8) (2009), 1-9.**
44. R.C. Mittal and **Ram Jiwari**, Differential quadrature method for two dimensional Burgers' equations, **Int. J. for Comput. Methods in Eng. Science and Mech**, 10 (2009), 450-459.
45. R.C. Mittal and **Ram Jiwari**, A Spectral method for suspension bridge model, **Int. J. of Appl. Math. and Mech., 5(5) (2009), 66-75.**
46. R.C. Mittal and **Ram Jiwari,** Numerical study of Fisher's equation by using differential quadrature method, **Int. J. Information and systems Sciences**, 5(1)(2008), 143-160.
47. A Spectral method for the solution of a fourth order integro-differential equation, **IX International Scientific Conference "Science and Education" (28-29 March, 2012) Kemerovo State University, Belovo Institute, Russia, pp. 119-124.**

RESEARCH PROJECTS

1. **Ram, Jiwari (Principal Investigator)**, Theoretical Analysis and Numerical Simulation of Unsteady-State Singularly Perturbed Parabolic Model, **CSIR 2019, Cost 20 Lacs (Appx.).**
2. **Ram, Jiwari (Principal Investigator)**, Numerical Analysis and Computational Modeling of Nonlinear Parabolic Mathematical Models with Singular and Variable Coefficients, **Young Scientist (SERB 2016), Cost 18.06 Lacs (Appx.)**
3. **Ram Jiwari (Principal Investigator),** Numerical Analysis and Computational Modeling of Hyperbolic Partial Differential Equations, **FIG (IIT Roorkee 2014), Cost 6.5 Lacs**.

AWARDS

1. **DAAD Bilateraler Wissenschaftleraustausch at** Technische Universität Darmstadt**, Germany, 2017**
2. **Post Doc Fellow,** Institute of Industrial Mathematics**, Federal University do Paraná, Brazil, 2013.**
3. **Fundação para a Ciência e a Tecnologia (FCT), Fellowship of Portugal**, 2011
4. Graduate Aptitude Test in Engineering **(GATE-AIR-38),** 2011, India
5. **Senior Research Fellowship, CSIR, 2008**

6. National Eligibility Test **(NET)** & Junior Research Fellowship **(JRF),** CSIR, India, 2005.

TEACHING /RESEARCH EXPERIENCE

1. **Assistant Professor, Indian Institute of Technology Roorkee, India** (03 June, 2014 Ongoing)
2. **Assistant Professor, Thapar University Patiala, India** (April, 2014 to 02 June, 2014)
3. **Post Doc Fellow, Federal University do Paraná, Brazil** (9th Sept. 2013 to March, 2014)
4. **Thapar University Patiala** (19 May, 2011 to 8 Sept, 2013)
5. **Dr B R Ambedkar National Institute of Technology Jalandhar, India** (July, 2010 to 18 May, 2011)

WORKSHOP ORGANIZED

1. Applications of Computational Techniques in Engineering using MATLAB, 02-07 June, 2019 at QIP IIT Roorkee, Funded by AICTE.
2. Advanced Computational Techniques for Differential Equations with MATLAB, (ACTDEM 2018), 18- 22 Sep, 2018 at Department of Mathematics, IIT Roorkee, Funded by NBHM, CSIR.
3. Computational Techniques for Differential Equations with MATLAB (CTDE 2015), 02- 06 July, 2015 at Department of Mathematics, IIT Roorkee, Funded by DST, UCOST.

WORKSHOP/CONFERENCES ATTENTED

1. **New Frontiers in Numerical Analysis and Scientific Computing** (17-18 April, 2013) Conference held at **Kent State University, USA (Paper Presented).**
2. **NUMDIFF-13 (Sept 2012)** Conference & Symposium held at **Martin-Luther University, Halle, GERMANY.**
3. Workshop on **FEM** held at **TIFR CAM Bangalore** from 2 July to 13 July, 2012
4. Workshop **WMMFA on wavelets** held at **IIT Bombay** March 2012
5. Workshop on **Differential Equations and Mathematical Modelling**, held at **Delhi University**, 9 to 11 Feb, 2012.
6. **Symposium** held at **TIFR CAM Bangalore** Jan 2011.
7. One month School organized by **NBHM at Panjab University Chandigarh** Dec 2008.
8. **Symposium** held at **IISC Bangalore** 2008.
9. **NUMDIFF-12 (2009)** Conference & Symposium held at **Martin-Luther University, Halle, GERMANY.**
10. **IAWS-CFD Workshop and Conference** held at **IIT Roorkee**, Roorkee, 2006

REVIEWER OF REFERED JOURNALS

1. **Computer Physics Communications (Elsevier)**

2. **Mathematical Methods in the Applied Sciences (Wiley Publication)**
3. **Applied Mathematical Modelling (Elsevier)**
4. **Applied Mathematical and Computation (Elsevier)**
5. **Computers and Mathematics with Applications (Elsevier)**
6. **Neural Computing and Applications (Springer)**
7. **Nonlinear Dynamics (Springer)**
8. **Engineering Computations (Emerald)**
9. **International Journal of Numerical Methods for Heat and Fluid Flow (Emerald)**
10. **International Journal of Nonlinear Science**

REFERENCES

1. **Prof. Ramesh Chand Mittal**
   Professor   Relationship: Ph.D. Supervisor
   Department of Mathematics
   Indian Institute of Technology Roorkee
   Uttarakhand-247667, India
   Email: rcmmmfma@iitr.ernet.in   Telephone number: +91 - 9319912030
   mittalrc@gmail.com

2. **Dr. Kapil Kumar Sharma**
   Associate Professor   Relationship: Research Collaborator
   Department of Mathematics
   South Asian University, Akbar Bhawan,
   Chanakyapuri New delhi
   India
   Email: kapil.sharma@sau.ac.in   Telephone number: +91 - 9560182948

3. **Prof N. Sukavanam**
   Professor   Relationship: Teacher in Ph.D course Work
   Department of Mathematics
   Indian Institute of Technology Roorkee
   Uttarakhand-247667, India
   Email: nsukvfma@iitr.ernet.in   Telephone number: +91 - 1332 - 285341