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Educational Qualifications

- **Bachelor of Science (B.Sc.) -2003 (Ist. Div)**
  C.S.J.M. University Kanpur (India) in **Mathematics** and Physics
- **Master of Science (M.Sc.) –2006 (Ist. Div)**
  C.S.J.M. University Kanpur (India) in **Mathematics**
- **Master of Philosophy (M.Phil.) -2008 (Ist. Div)**
  C.S.J.M. University Kanpur (India) in **Mathematics**
- **Ph.D. (Course-Work) – 2009**
  CGPA **8.67** out of 10 in **Applied Mathematics**
- **Ph.D. - 2012**
  Indian Institute of Technology, Banaras Hindu University, Varanasi 221005

Thesis Title: "Numerical Solution of Generalized Abel Integral equation and Some Nonlinear Partial Differential Equations by Homotopy and operational Methods"

Personal Details

- **Sex** **:-** Male
- **Date of Birth** **:-** 10/10/1982
- **Education** **:-** M.Sc., M.Phil., Ph.D. (IIT- BHU) **(2012)**
- **Marital Status** **:-** Unmarried
- **Nationality** **:-** Indian

- **Hobby :** Research and friendship
- **Language :** Hindi, English
- **Massage: Help to Needy Peoples**

Important Link

- Facebook Link **:** http://www.facebook.com/skiitbhu
- Twitter Link **:** https://twitter.com/skbhu_82/lists
- Orkut Link **:** http://www.orkut.co.in/Main#Home
- Google Scholar**:** http://scholar.google.co.in/citations?user=sRyN088AAAAJ&hl=en
- Academia.edu : http://nitjsr.academia.edu/DrSunilKumar

Computers Skills

- Mathematical Software : Mathematica, Matlab.
- Typesetting Software : Latex, Microsoft Office.

Honors & Awards

- **UGC-JRF (Rajiv Gandhi National Fellowship):** From July 2008 to June 2010.
- **UGC-SRF (Rajiv Gandhi National Fellowship):** From July 2010 June 2011.
- **GATE- 2007** with All India rank 276th.

Course Taught

- Complex Analysis
- Linear Algebra
- Numerical Technique
- Statistical Technique
- Differential Equation

Research Involvement

- Mathematical Modelling
- Fractional Calculus
- Integral Equation
- Nonlinear Sciences
- Mathematical Physics
- Numerical Methods and Analytical Methods, **(Homotopy Analysis Method, Homotopy Analysis Transform Method, Homotopy Perturbation Method, Homotopy Perturbation Transform Method, Adomian Decomposition method, Laplace Decomposition Method, Galerkin Method, Fractional Order Legendre Function, Operational Matrix Method)**
- Analytical and Numerical Solutions of Nonlinear Problems Arising in Applied Sciences and Engineering.
- Numerical Analysis
- Wavelet Methods

Teaching Experience

- Assistant Professor in Dehradun Institute of Technology, Dehradun Uttarakhand, India from Aug. 1, 2011 to March 28, 2012.
- Assistant Professor in National Institute of Technology, Jamshedpur, 831014, Jharkhand India from April. 13, 2012 to till now.

Ph.D. Supervision

1. **Mr. Amit Kumar, (M.Sc., NIT, Rourkela)** (July, 2013) **(In progress)**

Published Papers/accepted in International Journal

[1] **Sunil Kumar** and Om P. Singh, Numerical Inversion of the Abel Integral Equation using Homotopy Perturbation Method, *Zeitschrift fur Naturforschung*, 65a, 677-682 (2010) **(IF: 0.929).**

[2] **Sunil Kumar**, Om P. Singh, Sandeep Dixit, Homotopy Perturbation Method for Solving System of Generalized Abel's Integral Equations, *Applications and Applied Mathematics: An International Journal*, 5(10), 2009– 2024 (2011).

[3] S. Dixit, Om P. Singh, **Sunil Kumar,** An analytic algorithm for solving system of Fractional Differential equations, *Journal of Modern Methods in Numerical Methods*, 1(1), 12-26 (2010).

[4] S. Das, **Sunil Kumar**, Om P. Singh**,** Solutions of Nonlinear Second Order Multi-point Boundary Value Problems by Homotopy Perturbation Method, *Applications and Applied Mathematics: An International Journal*, 5, 1592-1600 (2010).

[5] **Sunil Kumar,** Om P. Singh, Sandeep Dixit, Solution of Generalized Abel Integral Equation by Homotopy Perturbation Method, *Applied Mathematical Sciences,* (5), 5, 223-232 (2011).

[6] **Sunil Kumar**, Om P. Singh, Sandeep Dixit, Generalized Abel Inversion Using Homotopy Perturbation Method, *Applied Mathematics*, 2, 254-257 (2011).

[7] S. Dixit, Rajesh K. Pandey, **Sunil Kumar,** Om P. Singh, Solution of Generalized Abel Integral equation by using Almost Bernstein Operational Matrix, *American Journal of Computational Methods***,** 1, 226-234 (2011).

[8] M. Khan, M. A. Gondal, **Sunil Kumar,** A Novel Homotopy Transform Method Algorithm for Linear and nonlinear System of Partial Differential Equations, *World Applied Sciences Journal,* 12(12), 2352-2357(2011).

[9] M. Khan, M. A. Gondal, **Sunil Kumar,** A new analytical approach to solve exponential stretching sheet problem in fluid mechanics by variational iterative Pade method, *The Journal of Mathematics and Computer Sciences,* 3(2) 135-144 (2011).

[10] S. Das, **Sunil Kumar**, K. Vishal, Application of Homotopy Analysis method for fractional Swift Hohenberg equation- Revisited, *Applied Mathematical Modelling,* Modelling 36 (8), 3630–3637(2012) **(Elsevier) (IF: 1.709).**

[11] **Sunil Kumar**, A. Yildirim, M. Khan, M.A. Gondal, and I. Hussain, A Fractional Model of Impurity Concentration and Its Approximate solution, *World Applied Sciences Journal*, 13 (12), 2455-2462, **(**2011).

[12] **Sunil Kumar,** Yasir Khan**,** Ahmet Yildirim, A Mathematical Modelling arising in the Chemical Systems and its Approximate Numerical solution, *Asia Pacific Journal of Chemical Engineering*, 7 (6), 835-840, (2012) **(Wiley) (IF: 0.797).**

[13] Yasir Khan, Naeem Faraz, **Sunil Kumar,** Ahmet Yildirim, A coupling Method of homotopy method and Laplace transform for fractional modells, U.P.B. Sci. Bull., Series A Appl. Math. Phys, 74 (1), 57-68 (2012).

[14] M. Khan, M. A. Gondal, **Sunil Kumar,** A new analytical solution procedure for nonlinear integral equations, Mathematical and Computer Modelling, 55(7), 1892-1897 (2012) **(Elsevier) (IF: 1.420).**

[15] Sandeep Dixit, Om P. Singh, **Sunil Kumar,** A stable numerical inversion of Generalized Abel Integral Equation, *Applied Numerical Mathematics,* 62(5), 567-579 (2012) **(Elsevier) (IF: 1.152).**

[16] **Sunil Kumar,** Ahmet Yildirim, Yasir Khan**,** H. Jafari, K. Sayevand, L. Wei, A Analytical Solution of Black- Scholes Option Pricing Equation by using Laplace transform**,** *Journal of fractional calculus and Applications,* 2(8), 1-9 (2012).

[17] Z. Pınar, A. Yıldırım, **Sunil Kumar**, A. Heidar, Syed Tauseef Mohyud-Din, Variational Iteration Method for Bi-fractional Black-Merton-Scholes Model, *International Journal of Pure and Applied Mathematics,* (Accepted) 2012.

[18] **Sunil Kumar,** H. Kocak, Ahmet Yildirim, A fractional model of gas dynamics equation by using Laplace transform, *Zeitschrift fur Naturforschung*, 67a, 389 – 396 (2012) **(IF: 0.929).**

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[20] L. Wei, X. Zhang**,** **Sunil Kumar,** Numerical study based on an implicit fully discreate local discontinuous Galerkin method for time fractional coupled Schrodinger system, *Computer and Mathematics with application*, 64 (8), 2603-2615 (2012) **(Elsevier) (IF: 2.069).**

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[23] **Sunil Kumar,** A new mathematical modelling for nonlinear wave in hyperlastic rod and its approximate solution, *Walailak Journal of Sciences and Technology*, (2012) (Accepted) (**IF: 0.086).**

[24] Wenbin Zhang, Jiangbo Zhou, **Sunil Kumar,** Symmetry Reduction, Exact Solutions, and Conservation Laws of the ZK-BBM Equation, ISRN Mathematical Physics, doi:10.5402/2012/

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[26] Jiangbo Zhou, Lixin Tian, Wenbin Zhang, **Sunil Kumar**, Peakon–antipeakon interaction in the Dullin–Gottwald–Holm equation, *Physics Letters A*, 377, 1233–1238 (2013) **(Elsevier) (IF: 1.766).**

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[29] **Sunil Kumar**, Naeem Faraz, Khosro Sayevand, A fractional model of Bloch equation in Nuclear magnetic Resonence and its approximate solution, *Walailak Journal of Sciences and Technology*, (2013) **(Article in press)** (**IF: 0.086).**

[30] **Sunil Kumar,** Devendra Kumar, U. S. Mahabaleswar, A new adjustment of Laplace transform for fractional Bloch equation in NMR flow, *Application and Applied Mathematics: An International Journal* (AAM) **(Article in press)** (2013)

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[38] **Sunil Kumar,** Numerical Computation of Time-Fractional Equation Arising in Solid State Physics and Circuit theory, Zeitschrift fur Naturforschung, (Accepted) (2013) **(IF: 0.929).**

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Communicated papers

[43] **Sunil Kumar** et. al., Analytical expressions of population of Host, parasite and free living parasite: Modelling of Argulus foliaceus in trout fisheries, **(Under Review),** (2013), **(Elsevier).**

[44] **Sunil Kumar** et. al., Parametric Analysis of Entropy Generation in Off-Centered Stagnation Flow towards a Rotating Disc with the Keller-Box Method solution **(Under Review),** (2013), **(Elsevier).**

[45] **Sunil Kumar** et. al., Bernstein Operational Matrix Approach for Integro-Differential Equation Arising in Control theory and Astronomy **(Under Review),** (2013).

[46] **Sunil Kumar** et. al., On the numerical solution of nonlinear systems of algebraic equations by power series, **(Under Review),** (2013).

[47] **Sunil Kumar** et. al., A new formula for Adomian polynomials and the analysis of its truncated series solution for the fractional non-differentiable IVPs, **(Under Review),** (2013).

[48] **Sunil Kumar** et. al., An accurate numerical method for solving the linear fractional Klien-Gordon equation, , **(Under Review),** (2013).

[49] **Sunil Kumar** et. al., A numerical scheme for solving differential equations with space- and time-fractional coordinates derivatives, **(Under Review),** (2013).

[50] **Sunil Kumar** et. al., Exponential Chebyshev functions for solving BVPs in semi-infinite domains, **(Under Review),** (2013), **(Elsevier).**

[51] **Sunil Kumar** et. al., A new approximate analytical technique for dual solutions of nonlinear differential equations arising in mixed convection heat transfer in a porous medium**, (Under Review),** (2013), **(Elsevier).**

[52] **Sunil Kumar** et. al., A new fractional modelling for wave equation in flow of gases by using Laplace transform, **(Under Review),** (2013), **(Elsevier).**

[53] **Sunil Kumar** et. al., Numerical Computation of Nonlinear Fractional Zakharov-Kuznetsov Equation arising in Ion- Acoustic Wave, **(Under Review),** (2013).

[54] **Sunil Kumar** et. al., New fractional homotopy analysis transform method for solving the physical model, **(Under Review),** (2013).

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[56] **Sunil Kumar** et. al., Travelling Wave Solution of Abel Integral Equation Arising in Astrophysics via Laplace Transform, **(Under Review),** (2013), **(Elsevier).**

[57] **Sunil Kumar** et. al., A new efficient algorithm to solve non-linear fractional Ito coupled system and its approximate solution, **(Under Review),** (2013).

[58] **Sunil Kumar** et. al., A new fractional analytical approach for treatment of system of physical models by using Laplace Transform **(Under Review),** (2013).

[59] **Sunil Kumar** et. al., Travelling-Wave Solution Fractional Navier-Stokes Equation by Using New Modified Laplace Decomposition Method, **(Under Review),** (2013), **(Elsevier).**

[60] **Sunil Kumar** et. al., Efficiency of new homotopy analysis transform method for fractional wave equation, **(Under Review),** (2013), **(Elsevier).**

[61] **Sunil Kumar** et. al., Parametric Analysis of Entropy Generation in Off-Centered Stagnation Flow towards a Rotating Disc with the Keller-Box Method solution, **(Under Review),** (2013), **(Elsevier).**

National Conference Paper

1. Rakesh Mohan, **Sunil Kumar,** R. N. Prajapati, An efficient algorithm to solve time fractional Biological problem, National Conference on Mathematical Modelling and Computer Simulation, Institute of Technology, Banaras Hindu University, Varanasi 2011.

2. S. Dixit, Om P. Singh, **S. Kumar**, A stable numerical inversion of generalized Abel integral equation, National Conference on Mathematical Modelling and Computer Simulation, Institute of Technology, Banaras Hindu University, Varanasi, 2011.

Member of the International Association of Engineers

IAENG membership number is: **127024**

Member in Editorial Board

1. **Studies in Nonlinear Sciences (http://idosi.org/sns/board.htm)**
2. **Communication in Numerical Analysis (http://www.ispacs.com/cna/)**
3. **International Journal of Engineering and Sciences (http://ijens.org/index.htm)**
4. **Journal of Basic and Applied Sciences (http://www.lifescienceglobal.com/independent-journals/journal-of-basic-and-applied-sciences/editorial-board)**

5. **International Journal of Mathematical Engineering and Sciences (https://sites.google.com/site/ijmesjournal/Editorial-Team)**
6. **Journal of Basic and Applied Scientific Research (http://www.textroad.com/Editorial board-JBASR.html)**
7. **International Journal of Applied Computational Science and Mathematics (http://www.ripublication.com/editorial_board_of_ijacsm.htm)**
8. **International Journal of Scientific and Engineering research (http://www.ijser.org/editorial-board_page2.aspx)**
9. **International Journal of Mathematical Engineering and Sciences (http://www.ijmes.com/index.php?pGt=5)**
10. **American Journal of Numerical Analysis (http://nitjsr.ac.in/new/faculty/index.php?id=108005)**
11. **International Journal of Modern Mathematical Sciences (http://modernscientificpress.com/Journals/IJMMS.aspx)**
12. **World Research Journal of Engineering and Technology (http://www.bioinfopublication.org/journal.php?opt=azjou&jouid=BPJ0000061&detail=editorial#)**
13. **International Journal of Modern Applied Physics (http://modernscientificpress.com/Journals/IJMEP.aspx)**
14. **International Journal of Engineering and Advanced Technology (http://www.ijeat.org/editors.php)**

Professional Service as Reviewer

1. **Reviewer** of American journal of Computational Mathematics **(Scientific Research).**
2. **Reviewer** of Mathematical Methods in Applied Sciences **(Wiley).**
3. **Reviewer** of International Journal of Nonlinear Sciences and Numerical Simulation
4. **Reviewer** of Computer and Mathematics with Application **(Elsevier)**
5. **Reviewer** of Scientific Research and Essays
6. **Reviewer** of World Applied Sciences Journal
7. **Reviewer** of International journal of Nonlinear Sciences
8. **Reviewer** of Mathematical and Computer Modelling **(Elsevier)**

9. **Reviewer** of International Journal of Computer Mathematics **(Taylor and Fransis)**
10. **Reviewer** of International Journal of Computational Methods
11. **Reviewer** of Applied Mathematics and Information Science Journal
12. **Reviewer** of Zeitschrift für Naturforschung
13. **Reviewer** of Indian Journal of Science and Technology
14. **Reviewer** of Applied Mathematics Latter **(Elsevier)**
15. **Reviewer** of Applicable Analysis **(Taylor and Francis)**
16. **Reviewer** of Walailak Journal of Science and Technology
17. **Reviewer** of International Journal of Numerical Methods for Heat and Fluid Flow
18. **Reviewer** of Biomedical Research
19. **Reviewer** of Science Journal Publication
20. **Reviewer** of Applied Mathematics Computation **(Elsevier)**
21. **Reviewer** of Application and Applied Mathematics: An International Journal
22. **Reviewer** of The European Physical
23. **Reviewer** of Applied Mathematical Modelling **(Elsevier)**
24. **Reviewer** of Communication Numerical Analysis
25. **Reviewer** of Mathematical Modelling and Analysis
26. **Reviewer** of Ocean Engineering **(Elsevier)**
27. **Reviewer** of Differential equation and Dynamical Systems **(Springer)**
28. **Reviewer** of Iranian Journal of Fuzzy system
29. **Reviewer** of International journal of Physical Sciences
30. **Reviewer** of International journal of Nonlinear Science
31. **Reviewer** of International journal of Applied Mathematics Computation
32. **Reviewer** of Advances in Applied Mathematics and Mechanics
33. **Reviewer** of QScience Connect
34. **Reviewer** of International Journal of Modern Mathematical Sciences
35. **Reviewer** of Journal of Egypatian Mathematical Society (Elsevier)
36. **Reviewer** of Information Sciences Letters

References

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Declaration

I, hereby declare that all the statements made in this application are true and complete to the best of my knowledge and brief.

(Sunil Kumar)