CURRICULAM VITAE

Dr. Sunil Kumar   **Email.id**- skiitbhu28@gmail.com

Assistant Professor   skumar.rs.apm@itbhu.ac.in

Department of Mathematics   skumar.math@nitjsr.ac.in

National Institute of Technology,   Mob. No: +91-7870102516

Jamshedpur, 831014, Jharkhand, India

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. - 2011**
  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"

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.

Research Fields

- ➢ Mathematical Modelling
- ➢ Fractional Calculus
- ➢ Integral Equation
- ➢ Numerical Methods and Analytical Methods,
- ➢ Analytical and Numerical Solutions of Nonlinear Problems Arising in Applied Sciences and Engineering.

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.

Important Link

Research Gate link- https://www.researchgate.net/profile/Dr_Sunil_Kumar3/

Facebook Link- http://www.facebook.com/skiitbhu

Editorial board Member- https://sites.google.com/site/ijmesjournal/Editorial-Team
Editorial board Member-
http://www.ispacs.com/cna/?p=cna_editorial_board&PHPSESSID=q05vr58ov4vsq98vokdl3
8r4k2
Editorial board Member- http://idosi.org/sns/board.htm
Reviewer:
http://www.sapub.org/journal/editorialdetails.aspx?JournalID=1076&PersonID=16650

Personnel Profile: http://nitjsr.ac.in/new/faculty/index.php?id=108005

Published Papers in International Journal

(1) <u>**Sunil Kumar**</u> and Om P. Singh, Numerical Inversion of the Abel Integral Equation using Homotopy Perturbation Method, *Z. Naturforsch.* **65a, 677-682 (2010).**

(2) <u>**Sunil Kumar**</u>, Om P. Singh, Sandeep Dixit, Homotopy Perturbation Method for Solving System of Generalized Abel's Integral Equations, *Applications and Applied Mathematics: An International Journal (AAM)* **Vol. 5, Issue 10 (2011)**

(3) S. Dixit, Om P. Singh, <u>**S.Kumar,**</u> An analytic algorithm for solving system of Fractional Differential equations, *Journal of Modern Methods in Numerical*

Methods, **1(1), (2010) 12-26.**

(4)   S. Das, **<u>Sunil Kumar</u>**, Om P. Singh**,** Solutions of Nonlinear Second Order Multi-point Boundary Value Problems by Homotopy Perturbation Method, *Applications and Applied Mathematics: An International Journal (AAM)*, **Vol. 05 (2010), 1592-1600.**

(5)   **<u>Sunil Kumar</u>,** Om P. Singh, Sandeep Dixit, Solution of Generalized Abel Integral Equation by Homotopy Perturbation Method, *Applied Mathematical Sciences,* **Vol. 5, 2011, No. 5, 223-232.**

(6)   **<u>Sunil Kumar</u>**, Om P. Singh, Sandeep Dixit, Generalized Abel Inversion Using Homotopy Perturbation Method, *Applied Mathematics***, Vol. 2, 2011 pp. 254-257**

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

(8)   M. Khan, M. A. Gondal, **<u>Sunil Kumar</u>,** 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, **<u>Sunil Kumar</u>,** 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**, Vol. 3, No. 2 (2011) 135-144.

(10)   S. Das, **<u>Sunil Kumar</u>**, K. Vishal, Application of Homotopy Analysis method for fractional Swift Hohenberg equation- Revisited, **Applied Mathematical Modelling, Modelling 36 (8), (2012),** 3630–3637 **(Elsevier)**

(11)   **<u>Sunil Kumar</u>**, 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)   **<u>Sunil Kumar</u>,** Yasir Khan**,** Ahmet Yildirim, A Mathematical Modelling arising in the Chemical Systems and its Approximate Numerical solution, **Asia Pacific Journal of Chemical Engineering, DOI: 10.1002/apj.636 (2011)**

(13)   Yasir Khan, Naeem Faraz, **<u>Sunil Kumar</u>,** 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) (2012) 57-68.

(14)   M. Khan, M. A. Gondal, **<u>Sunil Kumar</u>,** A new analytical solution procedure for nonlinear integral equations, **Mathematical and Computer Modelling, 55(7)** (2012), 1892-1897 **(Elsevier)**

(15)   Sandeep Dixit, Om P. Singh, **<u>Sunil Kumar</u>,** A stable numerical inversion of Generalized Abel Integral Equation, *Applied Numerical Mathematics***, 62(5), (2012),567-579 (Elsevier)**

(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**,** Vol. 2. Jan. 2012, No.8, pp.1--9,

(17)   A. Heidari, N. Heidari, R. Amiri, F. K. Jahromi, M. Zeinalkhani, F. Ghorbani, A. Piri, **Sunil Kumar**, M. Ghorbani, A new approach to studying and investigating hydrogen storage in carbon nanostructures, International Journal of Scientific & Engineering Research Volume 3, Issue 3, March -2012

(18)   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

(19)   **Sunil Kumar,** H. Kocak, Ahmet Yildirim, A fractional model of gas dynamics equation by using Laplace transform, *Z. Naturforsch.* **67a, 389 – 396 (2012).**

(20)   **Sunil Kumar,** Ahmet Yildirim, W. Leilei, A fractional model of diffusion equation by using Laplace transform, Science Irantica, (2012) 19 (4), 1117–1123. **(Elsevier)**

(21)   L. Wei, Xindong Zhang**, Sunil Kumar,** Numerical study based on an implicit fully discrete local discontinuous Galerkin method for time fractional coupled Schrodinger system, Computer and Mathematics with application 64 (8) (2012)2603-2615 **(Elsevier)**

(22)   L. Wei, Yinnian He**,** Ahmet Yildirim, **Sunil Kumar,** Numerical study based on an implicit fully discrete local discontinuous Galerkin method for time fractional KdV-Burgers-Kuramoto equation, ZAMM (Accepted) (2012)

(23)   **Sunil Kumar,** M. P. Tripathi, Om P. Singh, A fractional model of Harry Dym equation and its approximate solution, Ain Shams Engineering Journal DOI: 10.1016/j.asej.2012.07.001 (2012) (Accepted) **(Elsevier)**

(24)   **Sunil Kumar,** A new mathematical modelling for nonlinear wave in hyperlastic rod and its approximate solution, Walailak Journal of Sciences and Technology, (2012) (Accepted)

(25)   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/

(26)   S. Kazem, S. Abbasbandy, **Sunil Kumar**, Fractional-order Legendre functions for solving fractional-order differential equations, Applied Mathematical Modelling, 37 (7), (2013) pp. 5498–5510. **(Elsevier)**

(27)   Alireza Sadr, **Sunil Kumar**, Solving Strongly Nonlinear Differential Equations by Differential Transform Method, Application and Applied Mathematics, (2012) **(Article in press)**

(28)   Devendra Kumar, Jagdev Singh, **Sunil Kumar**, Analytic and approximate solutions of space and time fractional telegraph equation via Laplace transform, Walailak Journal of Sciences and Technology, (2012) **(Article in press)**

(29)   Jianping Zhao, Bo Tang, **Sunil Kumar** and Yan Ren Hou, The extended fractional sub-equation method for nonlinear fractional differential equations, Mathematical Problems in Engineering, (Accepted) (2012) Volume 2012, Article ID 924956, 12 pages, doi:10.1155/2012/924956

(30)   **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, (2012) **(Article in press)**

(31)   **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)**

(32)   Jagdev Singh, Devendra Kumar, **Sunil Kumar,** New treatment of fractional Fornberg-Whitham equation via Laplace transform, Ain Sham Engineering Journal, (Accepted) (2012) **(Article in press)**

(33)   Jagdev Singh, Devendra Kumar, **Sunil Kumar,** A new reliable algorithm for solving discontinuity problem in nanotechnology, Ain Sham Engineering Journal, (Accepted) (2012) **(Article in press)** Science Irantica, **(Elsevier)**

(34)   Wenbin Zhang, *Jiangbo Zhou,* **Sunil Kumar,** On the support of solutions to a two-dimensional nonlinear wave equation, **Journal of Mathematics, (Accepted) (Article in Press) (Hindawi Publishing Corporation)**

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.

References

1. **Prof. Om P. Singh (Supervisor)**
   Department of Mathematics, Indian Institute of Technology, Varanasi, India
   Email- singhom@gmail.com, opsingh.apm@itbhu.ac.in
   Home page- http://www.iitbhu.ac.in/apm/OPSingh.htm

2. **Prof. Saeid Abbasbandy**
   Editor in Chief- Communication in Numerical Analysis
   Department of Mathematics, Imam Khomeini International University, Ghazvin, 34149-16818, Iran
   Email- abbasbandy@yahoo.com, abbasbandy@ikiu.ac.ir
   Home page- http://www.abbasbandy.com/

3. **Prof. A. M. Wazwaz**
   Department of Mathematics and Computer Sciences, Saint Xavier University, USA
   E-mail: wazwaz@sxu.edu
   Home page-http://web.sxu.edu/aw1/Index.html

4. **Dr. Ahmet Yildirim**
   Department of Applied Mathematics, Faculty of Science, Ege University 35100, Bornova, Izmir, Turkey
   Email- ahmetyildirim80@gmail.com, ahmet.yildirim@ege.edu.tr

5. **Dr. Huseyin Kocak**
   Department of Mathematical Sciences, University of Bath, Bath BA, United Kingdom
   Email- huseyinkocak35@gmail.com, H.Kocak@bath.ac.uk

Member of the International Association of Engineers

IAENG membership number is: **115368**

Member in Editorial Board

1. Studies in Nonlinear Sciences
2. International Journal of Mathematical Engineering and Sciences
3. Communication in Numerical Analysis

Professional Service

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 Fransis)**

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 Biamedical 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)**

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)