

## Bibliography

1. Zadeh, L.A. (1965), Fuzzy sets and systems, Proc. Syrup. on systems theory (Polytechnic Institute Press), Brooklyn NY.
2. Chang, S. L. and Zadeh L. A. (1972), On Fuzzy Mapping and Control, IEEE Transactions on System, Man Cybernetics, Vol.2, 30-34.
3. Dubois, D., and Prade, H. (1982), Towards Fuzzy Differential Calculus, Part 3, Differentiation, Fuzzy Sets and Systems, Vol. 8, 225-233.
4. Puri, M. L and Ralescu, D.A (1983), Differential of Fuzzy Functions, J. Math. Anal. Appl. Vol. 91, 321-325.
5. Hukuhara, M. (1967), Integration des applications measurables dont la valeur est un compact convexe. Fukc Ekvacioj Vol. 10, 205–223.
6. Kaleva, O. (1987). Fuzzy Differential Equations, Fuzzy Sets and Systems, Vol. 24, 301-317.
7. Seikala, S. (1987), On the fuzzy Initial value problem, Fuzzy Sets and Systems, Vol. 24(3), 319-330.
8. Kandel, A., Byatt, W.J. (1978), Fuzzy Differential equations, Mathematics.
9. Bede, B., and Gal, S. G. (2005), Generalization of the differentiability of fuzzy number valued function with application to fuzzy differential equation, Fuzzy Sets and Systems, Vol. 151, 581-599.
10. Ma, M., Friedman M. and Kandel, A. (1999), Numerical solutions of fuzzy differential equations, Fuzzy Sets and Systems, Vol. 105, 133-138.
11. Shokri J. (2007). Numerical Solutions of Fuzzy Differential Equations, Applied Mathematical Sciences, Vol. 1(45), 2231-2246.
12. Abbasbandy, S. and Allahviranloo, T. (2002), Numerical solutions of fuzzy differential equations by taylor method, Computational Methods in Applied Mathematics, Vol.2, 113-124.
13. Abbasbandy, S. and Allahviranloo, T. (2011), and Darabi P., Numerical solutions of N-order fuzzy differential equations by runge- kutta method, Mathematical and Computational Applications, Vol. 16, 935-946.
14. Allahviranloo, T., Ehmady, N. and Ehmady, E. (2007), Numerical solutions of fuzzy differential equations by predictor- corrector method, Information Sciences, Vol. 177, 1633-1647

15. Jayakumar T. Maheshkumar D. and Kanagrajan K. (2012) Numerical Solutions of Fuzzy Differential Equations by Runge- Kutta Method of Order Five, Applied Mathematical Sciences, Vol. 6, 2089-3002.
16. Parandin, N. (2013), Numerical solutions of fuzzy differential equations of 2nd order by runge- kutta method, Journal of Mathematical Extension Vol. 7, 47-62.
17. Kanagrajan K. Suresh R. (2014) Numerical Solutions of Fuzzy Differential Equations Under Generalized Differentiability By Improved Euler Method, International Journal Of Applied Mathematics and Computation, Vol. 6(1), 17-24.
18. Allahviranloo, T., Ahmadi, M.B. (2010), fuzzy Laplace transforms, soft comput. Vol. 14, 235-243.
19. Salahshour, S., Allahviranloo, T. (2013), Applications of Fuzzy Laplace Transforms, Soft Comput Vol. 17, 145-158.
20. Eljaoui, E., Mellani, S., Saadia Chadli, L. (2015), Solving second order fuzzy differential equation by the fuzzy Laplace Transform method, Advance in Difference Equation, Vol. 66, 1-14.
21. Hayder, A. K., Mohammad Ali Hawrra, F. (2015), Generalization of Fuzzy Laplace Transforms for Fuzzy derivatives, Journal of Kerbala University, Vol. 13(2), 120-137.
22. Babolian, E., Vahidi, A.R. and Azimzadeh, Z. (2012), A Comparison Between Adomian's Decomposition Method and the Homotopy Perturbation Method for Solving Nonlinear Differential Equations. Journal of Applied Sciences, Vol.12, 793-797.
23. Adomian, G. (1994), Solving Frontier problems of Physics: The decomposition method, Kluwer Academic Publishers.
24. He, J.H. (2006), Some asymptotic methods for strongly nonlinear equations, Internat. J. Modern Phys. B, Vol. 20(10), 1141-1199.
25. Charkrit, S. (2013), On the Solutions of First and Second Order Nonlinear Initial Value Problems, Proceedings of the World Congress on Engineering, WCE, July 3 - 5, London, U.K.
26. Jian, L.L. (2009), Adomian's decomposition method and homotopy perturbation method in solving nonlinear equations, Journal of computational and Applied Mathematics, Elsevier, Vol. 228(1), 168-173.
27. He, J.H. (2000), Variational iteration method for autonomous ordinary differential systems, Appl. Math. Comput., Vol. 114, 115–123.

28. Xu,Jinping, Zhigao, L., Neito, J.J (2010), A class of linear differential dynamical system with fuzzy matrices, *J. Math. Anal. Appl.*, Vol. 368, 54-68.
29. Ghazanfari, B., Niazi, S., Ghazanfari, A. G. (2012), Linear matrix differential dynamical system with fuzzy matrices, *Applied Mathematical Modelling* Vol. 36, 348-356.
30. Pandit, P. (2012), Fully Fuzzy System of Linear Equations, *International Journal of Soft Computing and Engineering (IJSCE)*, Vol. 2(5), 619-627.
31. Biswas, S., Roy, T.K. (2019), A semianalytical method for fuzzy integro-differential equations under generalized Seikkala derivative, *Soft Comput.* Vol. 23, 7959–7975.
32. Allahviranloo, T., Kiani, N.A., Barkhordari, M (2009), Toward the existence and uniqueness of solutions of second-order fuzzy differential equations. *Inf Sci.*, Vol. 179, 1207–1215.
33. Khastan, A., Nieto, J. J. and Rodríguez-López, R. (2011), Variation of constant formula for first order fuzzy differential equations, *Fuzzy Sets and Systems*, Vol. 177, 20–33.
34. J. J. Nieto, Khastan, A. and Ivaz, K. (2009), Numerical solution of fuzzy differential equations under generalized differentiability, *Nonlinear Analysis: Hybrid Systems*, Vol. 3(4), 700–707.
35. Tapaswini, S. and Chakraverty, S. (2014), “Euler based new solution method for fuzzy initial value problems,” *Int. J. Artific. Intell. Soft Comput.*, Vol. 4, 58–79.
36. Xiaoping, X., Yongqiang, F. (2006), On the structure of solutions for fuzzy initial value problem, *Fuzzy Sets and Systems*, Vol. 157(2), 212-229.
37. Prakash P, Kalaiselvi V (2009), Numerical solution of hybrid fuzzy differential equations by predictor corrector method. *International Journal of Computer Mathematics*, Vol. 86, 121–134.
38. Prakash, P., Kalaiselvi, V. (2012), Numerical solutions of fuzzy differential equations by using hybrid methods, *Fuzzy Inf. Eng.*, Vol. 4, 445–455.
39. Tapaswini, S. and Chakraverty, S. (2014), Numerical Solution of Fuzzy Differential Equations and its Applications, *Mathematics of Uncertainty Modelling in the Analysis of Engineering and Science Problems*.
40. Tapaswini, S. and Chakraverty, S. (2012), A new approach to fuzzy initial value problem by improved Euler method, *Int. J. Fuzzy Inform. Eng.*, Vol. 4, 293–312.
41. Fard, O. S. and Ghal Eh, N. (2011), Numerical solutions for linear system of first-order fuzzy differential equations with fuzzy constant coefficients *Inform. Sci.*, Vol. 181, 4765–4779.

42. Zimmermann, H. J. (2001), Fuzzy Set Theory and Its Application, Kluwer Academic Publishers, Boston/Dordrecht/London.
43. Lan, H. Y. and Nieto, J. J. (2009), On initial value problems for first-order implicit impulsive fuzzy differential equations, *Dynam. Syst. Appl.*, Vol. 18, 677–686.
44. Barros, L. C., Bassanezi, R. C. and Tonelli, P. A. (2000), Fuzzy Modelling in population dynamics, *Ecol. Model.*, Vol. 128, 27–33.
45. Oberguggenberger, M. and Pittschmann, S. (1999), Differential Equations with Fuzzy Parameters, *Mathematical and Computer Modelling of Dynamical Systems*, Vol. 5(3), 181-202.
46. Fard, O. S. (2009), A Numerical scheme for fuzzy calculus problem, *J Uncertain Syst.*, Vol. 3(4), 307-314.
47. Bede, B. (2013), Fuzzy Differential Equations in: *Mathematics of Fuzzy Sets and Fuzzy Logic*. Studies in Fuzziness and Soft Computing, Vol. 295, 171-191.
48. Wu HC (1999), The improper fuzzy Riemann integral and its numerical integration, *Infom Sci.*, Vol. 111, 109-137.
49. Song, S. and Wu, C. (2000) Existence and uniqueness of solutions to Cauchy problem of fuzzy differential equations, *Fuzzy sets and Systems*, Vol. 110, 55-67.
50. Bede, B. (2008), Note on Numerical solutions of fuzzy differential equations by predictor corrector method, *Information Sciences*, Vol. 178, 1917-1922.
51. Abbasbandy, S., Allahviranloo, T., Lopez, O. and Nieto J.J. (2004), Numerical methods for fuzzy differential inclusions, *Comput. Math. Appl.*, Vol. 48, 1633-1641.
52. Jayakumar, T., Kanagarajan, K. and Indrakumar S. (2012), Numerical solution of Nth-order fuzzy differential equation by runge-kutta method of order five, *Int. J. Math. Anal.*, Vol. 6(58), 2885-2896.
53. Pandit, P. (2017). Exact Solution of Semi-linear Fuzzy System. *The Journal of The Indian Mathematical Society*, Vol. 84(3-4), 225-238.
54. Bede, B., Rudas, I.J. and Bencsik (2007), First order linear fuzzy differential equation under generalized differentiability, *Inform. Sci*, Vol. 177, 1648-1662.
55. Georgiou, D. N, Nieto, J. J. and Rodriguez-Lopez, R. (2005), Initial value problem for higher order fuzzy differential equations, *Nonlinear Analysis*, Vol. 63(4), 587-600.
56. Buckley, J. J. and Feuring, T. (2001), Fuzzy initial value problem for nth-order linear differential equations, *Fuzzy Sets and Systems*, Vol. 121(2), 247-255.
57. Mosleh, M. (2013), Fuzzy neural network for solving a system of fuzzy differential equations, *Appl. Soft Comput.*, Vol. 13, 3597-3607.

58. Mosleh, M. and Otadi, M. (2012), Simulation and evaluation of fuzzy differential equations by fuzzy neural network, *Appl. Soft Comput.*, Vol. 12, 2817-2827.
59. Luciano, S. (2008), A generalization of Hukuhara difference for interval and fuzzy arithmetic, WP-EMS Working Papers Series in Economics, Mathematics and Statistics.
60. Lupulescu, V. (2008) Initial value problem for fuzzy differential equations under dissipative conditions, *Information Sciences*, Vol. 178, 4523–4533.
61. Pandit, P., Singh, P. (2014), Prey-Predator model and fuzzy initial condition, *International Journal of Engineering and Innovative Technology (IJEIT)* Vol. 3(12), 65-68.
62. Pandit P., Singh, P. (2017), Numerical technique to solve dynamical system involving fuzzy parameters, *International Journal of Emerging Trends and Technology in Computer Science (IJETTCS)*, Vol. 6(4), 51-57.
63. Pandit, P., Singh, P. (2018), Improved Euler Method to solve Fully Fuzzy Dynamical System, presented in international conference on electrical, electricals, computers, communication, mechanical and computing EECCMC-2018, Vallore, Tamilnadu.
64. Pandit, P., Singh, P. (2017), Fuzzy Laplace Transform technique to solve linear dynamical system with fuzzy parameters, in proceeding International Conference on “Research and Innovations in Science, Engineering and Technology” ICRISET-2017.
65. Pandit, P., Singh, P. (2019), Fully fuzzy Semi-Linear dynamical system solved by Fuzzy Laplace Transform under Modified Hukuhara derivative, SOCOPROS, ebook ISBN: 978-981-15-0035-0, AISC, Springer.
66. Pandit, P., Mistry, P, Singh, P. (2021), Population Dynamic Model of Two Species Solved by Fuzzy Adomian Decomposition Method, MMCITRE, eBook ISBN: 978-981-15-9953-8, AISC, Springer.
67. Pandit, P., Mistry, P.R., Singh, P.P. (2021). Mathematical Modelling of Air Heating Solar Collectors with Fuzzy Parameters. In: Baredar, P.V., Tangellapalli, S., Solanki, C.S. (eds) *Advances in Clean Energy Technologies*. Springer Proceedings in Energy. Springer, Singapore. [https://doi.org/10.1007/978-981-16-0235-1\\_55](https://doi.org/10.1007/978-981-16-0235-1_55).
68. Ghasemi, S.E, Hatami, M., Ganji, D.D (2013), Analytical thermal analysis of Air-heating solar collectors, *Journal of Mechanical Science and Technology*, 27 (11) Springer.
69. Pandit, P., Singh, P. (2021), Fuzzy Calculus under new approach, Communicated to journal.

70. George, Klir J., Yuan, B. (1995), Fuzzy Sets and Fuzzy Logic: Theory and Applications, Prentice Hall PTR Upper Saddle River New Jersey.
71. Buckley J.J, Feuring, T, Hayashi, Y. (2002), Linear System of first order ordinary differential equations: Fuzzy initial conditions, Soft Computing, 6, 415-421.
72. Pandit Purnima (2013), Systems with negative fuzzy parameters, IJITEE, 2(3).
73. Akin, O. and Oruc, O. (2012). A Prey Predator Model with Fuzzy Initial Values, Hacettepe Journal of Mathematics and Statistics. Vol 41 (3), 387-395.
74. Buckley, J. J., Jowers, L. J. (2006) Simulating Continuous Fuzzy Systems, Springer-Verlag, Berlin Heidelberg.
75. Boutayeb, A., Twizell, E., Achouayb, K. *et al.* (2004) A mathematical model for the burden of diabetes and its complications. *BioMed Eng OnLine* 3, 20. <https://doi.org/10.1186/1475-925X-3-20>.
76. S. Kalogirou, Solar Energy Engineering- Processes and Sytems, Elsevier, USA (2009).

## **Our Work:**

### **Published Articles**

1. Pandit, P., Singh, P. (2014), Prey-Predator model and fuzzy initial condition, International Journal of Engineering and Innovative Technology (IJEIT) Vol. 3(12), 65-68. (**UGC** list till 2018)
2. Pandit P., Singh, P. (2017), Numerical technique to solve dynamical system involving fuzzy parameters, International Journal of Emerging Trends and Technology in Computer Science (IJETTCS), Vol. 6(4), 51-57. (**UGC** list till 2018)
3. Pandit, P., Singh, P. (2019), Fully fuzzy Semi-Linear dynamical system solved by Fuzzy Laplace Transform under Modified Hukuhara derivative, SOCOPROS, ebook ISBN: 978-981-15-0035-0, AISC, Springer, [https://doi.org/10.1007/978-981-15-0035-0\\_13](https://doi.org/10.1007/978-981-15-0035-0_13). (**Indexed in SCOPUS**)
4. Pandit, P., Mistry, P, Singh, P. (2021), Population Dynamic Model of Two Species Solved by Fuzzy Adomian Decomposition Method, MMCITRE, eBook ISBN: 978-981-15-9953-8, AISC, Springer, [https://doi.org/10.1007/978-981-15-9953-8\\_42](https://doi.org/10.1007/978-981-15-9953-8_42). (**Indexed in SCOPUS**)
5. Pandit, P., Mistry, P.R., Singh, P.P. (2021). Mathematical Modelling of Air Heating Solar Collectors with Fuzzy Parameters. In: Baredar, P.V., Tangellapalli, S., Solanki,