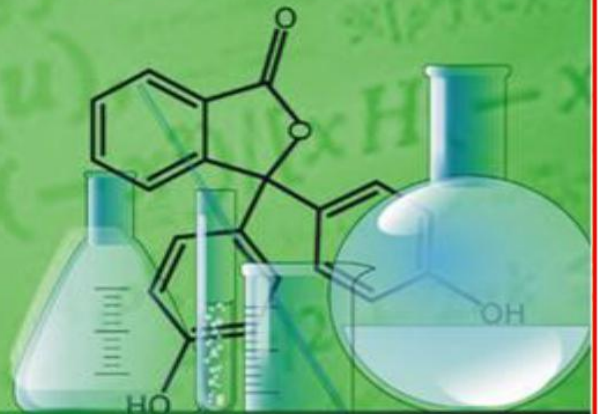
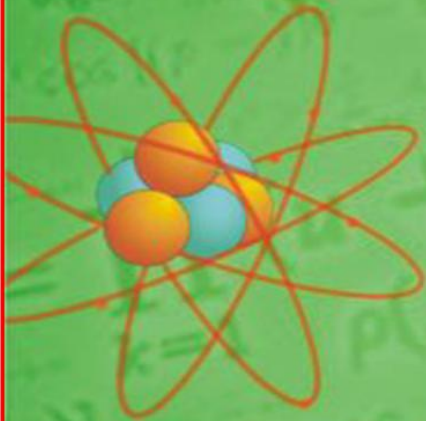


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1.	<b>Authors:</b>	<b>Harjot Singh, Saminder Talwar, Harkaran Singh</b>	
	<b>Paper Title:</b>	<b>Stability Analysis of Discrete-Time Prey-Predator Model with Harvesting Activity and Allee Effect</b>	
<p><b>Abstract:</b> In this paper, the stability analysis of discrete-time Prey-Predator model with harvesting activity in presence and absence of Allee effect on prey population has been carried out. Forward Euler method is applied to the continuous model to obtain the discrete-time model. We discussed the stability criterion of the discrete-time model at the fixed points. Numerical simulations have been carried out to show the dynamical behavior of the model.</p> <p><b>Keywords:</b> Harvesting activity, Forward Euler method, Critical points, Allee effect. Mathematics Subject Classification 2000: 97M60.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. R.P. Agarwal, P.J.Y. Wong, Advanced Topics in Difference Equations, Kluwer Academic Publishers, Dordrecht, 1997, p.507.</li> <li>2. C. Celik, O. Duman, Allee effect in a discrete-time predator-prey system, Chaos, Sol. and Frac. 40 (2009), 1956-1962.</li> <li>3. J. Dhar, A prey-predator model with diffusion and a supplementary resource for the prey in a two-patch environment, Math. Model. and Anal., 9 (2004), 9-24.</li> <li>4. B. Dubey, A prey-predator model with a reserved area, nonlinear anal.: Modelling and Control, 12 (2007), 479-494.</li> <li>5. H. I. Freedman, Deterministic mathematical models in population ecology, 2nd ed. Edmonton: HIFR Conf. 1980.</li> <li>6. K. Gopalsamy, Stability and Oscillation in Delay Differential Equations of Population Dynamics, Mathematics and its Applications, Kluwer Academic Publishers, Dordrecht, 1992, 74.</li> <li>7. S. B. Hsu, S. P. Hubble, P. Waltman, A contribution to the theory of competing predators, Ecological Monographs 48 (1979), 337-349.</li> <li>8. J.M. Jeschke, M. Kopp, R. Tollrian, Predator functional responses: Discriminating between handling and digesting prey, Ecological Monographs, 72(1) (2002), 95-112.</li> <li>9. R. E. Kooij, A. Zegeling, A predator-prey model with Ivlev's functional response, Math Anal. Appl. 188(1996), 473-89.</li> <li>10. X. Liu, D. Xiao, Complex dynamic behaviours of a discrete-time predator-prey system, Chaos, Sol. and Frac. 32 (2007), 80-94.</li> <li>11. W. Ma, Y. Takeuchi, Stability analysis on predator-prey system with distributed delays, J. comp. App. Math. 88(1998), 79-94.</li> <li>12. M. Martelli, Discrete Dynamical Systems and Chaos, Pitman Monographs and Surveys in Pure and Applied Mathematics, Vol. 62, New York: Longman, 1992.</li> <li>13. S. M. Moghdas, M. E. Alexander: Dynamics of a generalized Gauss-type predator-prey model with a seasonal functional response, Chaos, Sol. and Frac. 23(2005), 55-65.</li> <li>14. K.L. Narayan, N.C.P. Ramacharyulu, A prey-predator model with an alternative food for the predator, harvesting of both the species and with a gestation period for interaction, Int. J. Open Problems Compt. Math., 1(1) (2008).</li> <li>15. X. Liu, D. Xiao, Complex dynamic behavior of a discrete-time predator-prey system, Chaos, Sol. and Frac. 32(2007), 80-94.</li> </ol>		1-4	
2.	<b>Authors:</b>		<b>Majli Nema Hawas, Baker K. Al Rekaby</b>
	<b>Paper Title:</b>	<b>Analog Implementation and Realization of Artificial Neural Network Using Electronic Devices</b>	
<p><b>Abstract:</b> This paper introduces the implementation and realization of Artificial Neural Network (ANN) application in control systems such as real time speed control of permanent magnet DC motor. Two methods of ANN technique has been used, first a multi-layer feed forward neural network, second nonlinear auto regressive moving average based neural network (NARMA-L2) in order to overcome the problems associated with conventional control methods such as PI (Proportional-Integral).The two controller have been train offline and run online in real time using MATLAB software environment and data acquisition card as interface between a personal computer and the system.</p> <p><b>Keywords:</b> ANN; NARMA-L2; PMDC motor; Real time control system.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. C. L. Nascimento, Artificial Neural Networks, UK- MANCHSTER, 1994.</li> <li>2. P. R. K. a. C. S. Ginuga Prabhaker Reddy, "A Stable Artificial Neural Network Based NARMA-L2 Control of a Bioreactor with Input Multiplicities," in Proceedings of the World Congress on Engineering and Computer Science 2013 Vol II WCECS 2013, 23-25 October, 2013, San Francisco, USA, USA, 2013.</li> <li>3. M. I. Amit Atri, "Speed Control of DC Motor using Neural Network Configuration," International Journal of Advanced Research in Computer Science and Software Engineering, vol. Volume 2, no. Issue 5,, p. 4, 2012.</li> <li>4. H. B. D. D. J. MARTIN T. HAGAN, "AN INTRODUCTION TO THE USE OF NEURAL NETWORKS," Electrical &amp; Computer Engineering Department, University of Colorado, Boulder, Colorado, 80309, USA.</li> <li>5. F. C. a. S. Darenfed, "Neural Network NARMA Control of a Gyroscopic," The National Sciences and Engineering Research Council of Canada, canada, 2008.</li> <li>6. H. Demuth, Neural Network Toolbox, The MathWorks, Inc., 2002.</li> <li>7. K. Ogata, Modern Control Engineering, New Jersey: Prentiff Hall, New Jmey, 2002.</li> <li>8. T. Most, "Approximation of complex nonlinear functions by means of neural networks," Institute of Structural Mechanics, Bauhaus-University Weimar, 2005.</li> <li>9. B. K. Vikas Kumawat, "PID Controller of Speed and Torque of ServoMotor Using MATLAB," vol. 9, no. 1, p. 3, 2013.</li> <li>10. hilink, <a href="http://www.zeltom.com/">http://www.zeltom.com/</a>, [Online]. Available: <a href="http://www.zeltom.com/">http://www.zeltom.com/</a>. [Accessed 4 1 2015].</li> <li>11. M. H. Beale, Neural Network Toolbox™ 7, The MathWorks, Inc, 2010.</li> <li>12. "http://www.mathworks.com," mathworks, [Online]. Available: <a href="http://www.mathworks.com/help/nnet/ug/design-narma-l2-neural-controller">http://www.mathworks.com/help/nnet/ug/design-narma-l2-neural-controller</a>. [Accessed 22 2 2015].</li> <li>13. S. H.HUSAIN, "Real Time Implementation of NARMA-L2 Control of a Single Link Manipulator," American Journal of</li> </ol>		5-7	



<b>3.</b>	<b>Authors:</b>	<b>Domingo, Augustine ‘Dele</b>	
	<b>Paper Title:</b>	<b>Numerical Solutions of Fredholm Integral Equations using Collocation-Tau Method</b>	
	<p><b>Abstract:</b> Many problems arising in mathematics and in particular, applied mathematics or mathematical physics can be formulated in two but related ways, namely as differential or integral equation. Not all of such equations can be solved analytically; hence, numerical techniques are desirable. A tau collocation approach that combines the tau method with the idea of collocation for the solution of integral equations of Fredholm type is considered herein. The scope of the Lanczos-Tau method is thus extended so that integral equations can also be solved numerically with the tau process. This work is supported with numerical evidences which show that the desired solution is accurately estimated by the resulting Tau approximant.</p> <p><b>Keywords:</b> Collocation-Tau method, Fredholm Integral equations, Chebyshev polynomials, Linear Ordinary Differential equations.</p> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. Sastry, S.S., 1986. Engineering Mathematics, Volume One, Prentice Hall of India, New Delhi.</li> <li>2. Onumanyi, P. and O.A.Taiwo, 1991. A collocation approximation of a singularly perturbed second order differential equation” Computer Mathematics, 39: 205-211</li> <li>3. Taiwo, O.A., 1991. “Collocation methods for singularly perturbed ordinary differential equation” ph. D Thesis.</li> <li>4. Domingo, A.D., 2005. “Numerical Solution of Fredholm integral equation using collocation method” M Sc. Dissertation, University of Ilorin, Ilorin, Nigeria.</li> <li>5. Elliot, D., 1963. “A chebyshev series for the numerical solution of fredholm integral equations. Computer Journal, 6: 102.</li> <li>6. Oladejo S .O.,Mojeed T .A and Olurode K.A., 2007. “A cubic spline collocation method for the solution of integral equation” Journal of Applied Sciences Research, 4(6): 748-753, 2008, IN SInet Publication.</li> <li>7. De Boor, C. and Swartz, 1975. “Collocation at Gaussian points” SIAM Journal on numerical Analysis, 10: 82-666.</li> <li>8. Delves, L.M. and J.L. Muhammed, 1985. “Computational Method for integral equations. Cambridge University Press.</li> </ol>		<b>8-13</b>