

References

- [1] A. M. Concepción, Y. Q. Chen, B. M. Vinagre, Xue Dingyü, V. Feliu, *Fractional-order Systems and Controls Fundamentals and Applications*. London: Springer London, 2010.
- [2] S. Das, *Functional fractional calculus for system identification and controls*. Berlin, Heidelberg: Springer, 2008.
- [3] I. Podlubny, "Fractional-order systems and $PI^\alpha D^\mu$ controllers," *IEEE Trans. Autom. Control*, vol. 44, no. 1, pp. 208–214, 1999.
- [4] A. Oustaloup, *La commande CRONE, Commande robuste d'ordre non entier*, Hermes (Traité des Nouvelles Technologies-Série Automatique), Paris. ISBN 2-86601-289-5, 1991.
- [5] B. M. Vinagre, I. Podlubny, L. Dorcak and V. Feliu, "On Fractional PID Controllers: A Frequency Domain Approach", *IFAC Proceedings Volumes*, Terrassa, Spain, vol. 33, no. 4, pp. 51-56, 5-7April,2000.
- [6] C. A. Monje, B. M. Vinagre, A. J. Calderon, V. Feliu and Y. Q. Chen, "On fractional PI^α controllers: some tuning rules for robustness to plant uncertainties," *Nonlinear Dyn.*, Kluwer Academic Publishers, vol. 38, no. 1-4, pp. 369–381,2004.
- [7] D. Valerio, J. Sa da Costa, "Tuning of fractional PID controllers with Ziegler-Nichols-type rules," *Signal Process*, vol. 86, no. 10, pp. 2771–2784, 2006.
- [8] H. S. Li, Y. Luo and Y. Q. Chen, "A fractional order proportional and derivative (FOPD) motion controller: tuning rule and experiments." *IEEE Transactions on control systems technology*, vol.18, no. 2, pp. 516-520, 2010.
- [9] H. Chao, Y Luo, L Di, Y. Q. Chen," Roll-channel fractional order controller design for a small fixed-wing unmanned aerial vehicle," *Control Engineering Practice*, vol. 18, no. 7, pp. 761-772, 2010.
- [10] H. Delavari, R. Ghaderi, A. Ranjbar and S Momani, "Fuzzy fractional order sliding mode controller for nonlinear systems," *Communications in Nonlinear Science and Numerical Simulation*, vol. 15, no. 4, pp. 963-978, 2010.

- [11] S. E. Hamamci and K. Muhammet, "Calculation of all stabilizing fractional-order PD controllers for integrating time delay systems", *Computers & Mathematics with Applications*, vol. 59, no. 5, pp. 1621-1629, 2010.
- [12] C. H. Lee, and F. K. Chang, "Fractional-order PID controller optimization via improved electromagnetism-like algorithm," *Expert Systems with Applications* vol. 37, no. 12, pp. 8871-8878, 2010.
- [13] M. I. Alomoush, "Load frequency control and automatic generation control using fractional-order controllers," *Electrical Engineering (Archiv fur Elektrotechnik)* vol. 91, no. 7, pp. 357-368, 2010.
- [14] R. Melício, M. F. M. Víctor, and J. P. S. Catalão, "Fractional-order control and simulation of wind energy systems with PMSG/full-power converter topology," *Energy Conversion and Management*, vol. 51, no. 6, pp. 1250-1258, 2010.
- [15] X. Tian, Y. Huang, and C. Zhang, "The tuning principle of adaptive fuzzy fractional-order PID controller parameters," *Procedia Engineering*, vol. 7, pp. 251-255, 2010.
- [16] H. Delavari, A. N. Ranjbar, R. Ghaderi and S. Momani, "Fractional order control of a coupled tank," *Nonlinear Dynamics* vol. 61, no. 3, pp. 383-397, 2010.
- [17] M. K. Bouafoura and N. B. Braiek, "PI λ D μ controller design for integer and fractional plants using piecewise orthogonal functions", *Communications in Nonlinear Science and Numerical Simulation* vol. 15, no. 5, pp. 1267-1278, 2010.
- [18] I. S. Jesus, J.A.T. Machado and R. S. Barbosa, "Control of a heat diffusion system through a fractional order nonlinear algorithm," *Computers & Mathematics with Applications*, vol. 59, no. 5, pp. 1687-1694, 2010.
- [19] S. Ladaci, J. J. Loiseau, and A. Charef, "Adaptive internal model control with fractional order parameter." *International Journal of Adaptive Control and Signal Processing*, vol. 24, no. 11, pp. 944-960, 2010.
- [20] M. Tavakoli-Kakhki, M. Haeri, and M. S. Tavazoei, "Simple fractional order model structures and their applications in control system design." *European Journal of Control*, vol. 16, no. 6, pp. 680-694, 2010.
- [21] V. Çelik and Y. Demir. "Effects on the chaotic system of fractional order PI α controller." *Nonlinear Dynamics*, vol. 59, no. 1, pp. 143-159, 2010.

- [22] V. Bhambhani, Y. Han, S. Mukhopadhyay and Y. Luo, "Hardware-in-the-loop experimental study on a fractional order networked control system test bed," *Communications in Nonlinear Science and Numerical Simulation*, vol. 15, no. 9, pp. 2486-2496, 2010.
- [23] Y. Q. Chen, "Fractional calculus, delay dynamics and networked control systems," *Resilient Control Systems (ISRCS), 2010 3rd International Symposium on IEEE*, Idaho Falls, ID, USA, 10-12 Aug, 2010.
- [24] F. Padula, and A. Visioli, "Tuning rules for optimal PID and fractional-order PID controllers," *Journal of process control*, vol. 21, no. 1, pp. 69-81, 2011.
- [25] S. H. Hosseinnia, R. Ghaderi and A. Ranjbar, "Control of chaos via fractional-order state feedback controller." *New Trends in Nanotechnology and Fractional Calculus Applications. Springer Netherlands*, pp. 511-519, 2010.
- [26] W. Guo, J. Wen, and W. Zhou," Fractional-order PID dynamic matrix control algorithm based on time domain," *Intelligent Control and Automation (WCICA), 2010 8th World Congress on. IEEE*, Jinan, China, 7-9 July, 2010.
- [27] S. H. Hosseinnia, R. Ghaderi, A. Ranjbar and J Sadati, "Synchronization of gyro systems via fractional-order adaptive controller." *New Trends in Nanotechnology and Fractional Calculus Applications, Springer Netherlands*, pp. 495-502, 2010.
- [28] P. Lino, and G. Maione,"Tuning PI v fractional order controllers for position control of DC-servomotors," *Industrial Electronics (ISIE), 2010 IEEE International Symposium on. IEEE*, Bari, Italy, 4-7 July, 2010.
- [29] P. N. Narayanaswamy, P. Kanthabhabha, and S. E. Hamamci, "Fractional order PI λ control strategy for a Liquid Level System," *Nature and Biologically Inspired Computing (NaBIC), 2010 Second World Congress on. IEEE*, Kitakyushu, Japan, 15-17 Dec, 2010.
- [30] G. Maione, "High-speed digital realizations of fractional operators in the delta domain," *IEEE Transactions on Automatic Control*, vol. 56, no. 3, pp. 697-702, 2011.
- [31] C. Yeroglu and N. Tan, "Note on fractional-order proportional–integral–differential controller design," *IET control theory & applications*, vol. 5, no. 17, pp. 1978-1989, 2011.

- [32] Y. Luo, Y. Q. Chen, and Y. Pi, "Experimental study of fractional order proportional derivative controller synthesis for fractional order systems," *Mechatronics*, vol. 21, no. 1, pp. 204-214, 2011.
- [33] V. Feliu-Batlle, R. Rivas-Perez, F. J. Castell-Garcia, L. Sanchez-Rodriguez and A. Linarez-Saez, "Robust fractional order controller for irrigation main canal pools with time-varying dynamical parameters." *Computers and Electronics in Agriculture*, vol. 76, no.2, pp. 205-217, 2011.
- [34] M. Ö. Efe, "Fractional order systems in industrial automation—a survey." *IEEE Transactions on Industrial Informatics*, vol. 7, no. 4, pp. 582-591, 2011.
- [35] Y. Luo, H. Chao, L. Di and Y. Q. Chen, "Lateral directional fractional order (PI) α control of a small fixed-wing unmanned aerial vehicles: controller designs and flight tests," *IET control theory & applications*, vol. 5, no. 18, pp. 2156-2167, 2011.
- [36] H. Sheng, H. G. Sun, C. Coopmans and Y. Q. Chen, "A physical experimental study of variable-order fractional integrator and differentiator." *The European Physical Journal-Special Topics*, vol. 193, no. 1, pp. 93-104, 2011.
- [37] Y. Jin, Y. Q. Chen, and D. Xue, "Time-constant robust analysis of a fractional order [proportional derivative] controller," *IET control theory & applications*, vol. 5, no. 1, pp. 164-172, 2011.
- [38] S. Das, S. Das, and A. Gupta, "Fractional Order Modeling of a PHWR Under Step-Back Condition and Control of Its Global Power With a Robust $\{\rm PI\}^{\lambda} \{\rm D\}^{\mu}$ Controller," *IEEE Transactions on Nuclear Science*, vol. 58.5, pp. 2431-2441, 2011.
- [39] R. Zhang, and S. Yang, "Adaptive synchronization of fractional-order chaotic systems via a single driving variable," *Nonlinear Dynamics*, vol. 66, no. 4, pp. 831-837, 2011.
- [40] A. Rajasekhar, M. Pant, and A. Abraham, "A Hybrid Differential Artificial Bee Algorithm based tuning of fractional order controller for PMSM drive," *Nature and Biologically Inspired Computing (NaBIC), 2011 Third World Congress on. IEEE*, Salamanca, Spain, 19-21 Oct, 2011.
- [41] S. Das, S. Saha, S. Das and A. Gupta, "On the selection of tuning methodology of FOPID controllers for the control of higher order processes," *ISA transactions*, vol. 50, no. 3, pp. 376-388, 2011.

- [42] I. Rasoanarivo, K. Arab-Tehrani, and F-M. Sargos, "Fractional order PID and modulated hysteresis for high performance current control in multilevel inverters," *Industry Applications Society Annual Meeting (IAS), 2011 IEEE. IEEE*, Orlando, FL, USA, 9-13 Oct. 2011.
- [43] S. Debbarma, and L. C. Saikia, "Effect of fractional-order controller on automatic generation control of a multi-area thermal system," *International Conference on Sustainable Energy and Intelligent Systems (SEISCON 2011)*, Chennai, India, 20-22 July 2011.
- [44] M. P. Aghababa, "Robust stabilization and synchronization of a class of fractional-order chaotic systems via a novel fractional sliding mode controller," *Communications in Nonlinear Science and Numerical Simulation*, vol. 17, no. 6, pp. 2670-2681, 2012.
- [45] S. Das, I. Pan, S. Das and A. Gupta, "A novel fractional order fuzzy PID controller and its optimal time domain tuning based on integral performance indices," *Engineering Applications of Artificial Intelligence*, vol. 25, no. 2, pp. 430-442, 2012.
- [46] Y. Luo, and Y. Q. Chen, "Stabilizing and robust fractional order PI controller synthesis for first order plus time delay systems," *Automatica*, vol. 48, no. 9, pp. 2159-2167, 2012.
- [47] I. Pan, and S. Das, "Chaotic multi-objective optimization based design of fractional order $PI\lambda D\mu$ controller in AVR system," *International Journal of Electrical Power & Energy Systems*, vol. 43, no. 1, pp. 393-407, 2012.
- [48] D. Wang and X. Gao. " H_∞ design with fractional-order $PD\mu$ controllers." *Automatica*, vol. 48, no. 5, pp. 974-977, 2012.
- [49] F. Padula, and A. Visioli, "Optimal tuning rules for proportional-integral-derivative and fractional-order proportional-integral-derivative controllers for integral and unstable processes," *IET Control Theory & Applications*, vol. 6, no. 6, pp. 776-786, 2012.
- [50] B. T. Zhang, Y. G. Pi, and Y. Luo, "Fractional order sliding-mode control based on parameters auto-tuning for velocity control of permanent magnet synchronous motor," *ISA transactions*, vol. 51, no. 5, pp. 649-656, 2012.

- [51] T. Vinopraba, N. Shivakumaran, S. Narayanan and T. K. Radhakrishn, "Design of internal model control based fractional order PID controller," *Journal of Control Theory and Applications*, vol. 10, no. 3, pp. 297-302, 2012.
- [52] A. Rajasekhar, S. Das, and P. N. Suganthan, "Design of fractional order controller for a servo-hydraulic positioning system with micro Artificial Bee Colony Algorithm," *Evolutionary Computation (CEC), 2012 IEEE Congress onIEEE*, Brisbane, QLD, Australia, 10-15 June, 2012.
- [53] C. I. Pop, C. Lonescu, R. D. Keyser and E. H. Dulf, "Robustness evaluation of fractional order control for varying time delay processes," *Signal, Image and Video Processing*, vol. 6, no. 3, pp. 453-461, 2012.
- [54] R. Duma, P. Dobra, and M. Trusca, "Embedded application of fractional order control," *Electronics Letters*, vol. 48, no. 24, pp. 1526-1528, 2012.
- [55] A. Hajiloo, N. Nariman-Zadeh, and A. Moeini, "Pareto optimal robust design of fractional-order PID controllers for systems with probabilistic uncertainties," *Mechatronics*, vol. 22, no. 6, pp. 788-801, 2012.
- [56] T. Liang, J. Chen, and C. Lei, "Algorithm of robust stability region for interval plant with time delay using fractional order $PI \lambda D \mu$ controller," *Communications in Nonlinear Science and Numerical Simulation*, vol. 17, no. 2, pp. 979-991, 2012.
- [57] M. Ö. Efe, "Battery power loss compensated fractional order sliding mode control of a quadrotor UAV," *Asian Journal of Control*, vol. 14, no. 2, pp. 413-425, 2012.
- [58] F. Merrikh-Bayat, "General rules for optimal tuning the $PI\lambda D\mu$ controllers with application to first-order plus time delay processes," *The Canadian Journal of Chemical Engineering*, vol. 90, no. 6, pp. 1400-1410, 2012.
- [59] P. Lino, and G. Maione, "Fractional order PI tuning for integrating plants with time delay," *IFAC Proceedings Volumes*, vol. 45, no. 3, pp. 649-654, 2012.
- [60] P. Lino, and G. Maione, "Loop-Shaping and Easy Tuning of Fractional-Order Proportional Integral Controllers for Position Servo Systems," *Asian Journal of Control*, vol. 15, no. 3, pp. 796-805, 2013.
- [61] W. Sheng, and Y. Bao, "Fruit fly optimization algorithm based fractional order fuzzy-PID controller for electronic throttle," *Nonlinear Dynamics*, vol. 73, no.1-2, pp. 611-619, 2013.

- [62] I. Pan, and S. Das, "Frequency domain design of fractional order PID controller for AVR system using chaotic multi-objective optimization." *International Journal of Electrical Power & Energy Systems*, vol. 51, pp. 106-118, 2013.
- [63] C. I., Muresan, S. Foela, G. Mois and E. H. Dulf, "Development and implementation of an FPGA based fractional order controller for a DC motor," *Mechatronics*, vol. 23, no. 7, pp. 798-804, 2013.
- [64] H. Delavari, P. Lanusse, and J. Sabatier, "Fractional order controller design for a flexible link manipulator robot," *Asian Journal of Control*, vol. 15, no. 3, pp. 783-795, 2013.
- [65] M. P. Aghababa, "A fractional-order controller for vibration suppression of uncertain structures." *ISA transactions*, vol. 52, no. 6, pp. 881-887, 2013.
- [66] V. Feliu-Battle, R. Rivas-Perez, and F. J. Castillo-García, "Simple fractional order controller combined with a Smith predictor for temperature control in a steel slab reheating furnace," *International Journal of Control, Automation and Systems*, vol. 11, no. 3, pp. 533-544, 2013.
- [67] Y. Tang, X. Zhang, D. Zhang, G. Zhao and X. Gaun, "Fractional order sliding mode controller design for antilock braking systems," *Neuro-computing*, vol. 111, pp. 122-130, 2013.
- [68] H. Malek, Y. Luo, and Y. Q. Chen, "Identification and tuning fractional order proportional integral controllers for time delayed systems with a fractional pole," *Mechatronics*, vol. 23, no. 7, pp. 746-754, 2013.
- [69] S. Das, I. Pan, and S. Das, "Performance comparison of optimal fractional order hybrid fuzzy PID controllers for handling oscillatory fractional order processes with dead time," *ISA transactions*, vol. 52, no. 4, pp. 550-566, 2013.
- [70] S. Das, I. Pan, and S. Das, "Fractional order fuzzy control of nuclear reactor power with thermal-hydraulic effects in the presence of random network induced delay and sensor noise having long range dependence," *Energy Conversion and Management*, vol. 68, pp. 200-218, 2013.
- [71] M. Tavakoli-Kakhki, M. Haeri, and M. S. Tavazoei, "Study on control input energy efficiency of fractional order control systems," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 3, no. 3, pp. 475-482, 2013.

- [72] F. J. Castillo-Garcia, V. Feliu-Battle, and R. Rivas-Perez, "Time domain tuning of fractional order controllers combined with a Smith predictor for automation of water distribution in irrigation main channel pools," *Asian Journal of Control*, vol. 15, no. 3, pp. 819-833, 2013.
- [73] A. Rajasekhar, S. Das, and A. Abraham, "Fractional order PID controller design for speed control of chopper fed DC motor drive using artificial bee colony algorithm," *Nature and Biologically Inspired Computing (NaBIC), 2013 World Congress on. IEEE*, Fargo, ND, USA, 12-14 Aug., 2013.
- [74] L. Liu, F. Pan, and D. Xue, "Fractional-order optimal fuzzy control for network delay," *Optik-International Journal for Light and Electron Optics*, vol. 125, no. 23, pp. 7020-7024, 2014.
- [75] R. Li, and W. Chen, "Lyapunov-based fractional-order controller design to synchronize a class of fractional-order chaotic systems," *Nonlinear Dynamics*, vol. 76, no. 1, pp. 785-795, 2014.
- [76] R. Sharma, K. P. S. Rana, and V. Kumar, "Performance analysis of fractional order fuzzy PID controllers applied to a robotic manipulator," *Expert systems with applications*, vol. 41, no. 9, pp. 4274-4289, 2014.
- [77] A. Rajasekhar, A. Abraham, and M. Pant, "A hybrid differential artificial bee colony algorithm based tuning of fractional order controller for permanent magnet synchronous motor drive," *International Journal of Machine Learning and Cybernetics*, vol. 5, no. 3, pp. 327-337, 2014.
- [78] N. Ullah, W. Shaoping, M. I. Khattak and M. Shafi, "Fractional order adaptive fuzzy sliding mode controller for a position servo system subjected to aerodynamic loading and nonlinearities," *Aerospace Science and Technology*, vol. 43, pp. 381-387, 2015.
- [79] P. Mishra, V. Kumar, and K. P. S. Rana, "A fractional order fuzzy PID controller for binary distillation column control," *Expert Systems with Applications*, vol. 42, no. 22, pp. 8533-8549, 2015.
- [80] L. Liu, F. Pan, and D. Xue, "Variable-order fuzzy fractional PID controller," *ISATransactions*, vol. 55, pp. 227-233, 2015.

- [81] D. Li, L. Lui, Q Jin and K. Hirasawa, "Maximum sensitivity based fractional IMC–PID controller design for non-integer order system with time delay," *Journal of Process Control*, vol. 31, pp. 17-29, 2015.
- [82] M. P. Aghababa, "A fractional sliding mode for finite-time control scheme with application to stabilization of electrostatic and electromechanical transducers." *Applied Mathematical Modelling*, vol. 39, no. 20, pp. 6103-6113, 2015.
- [83] I. Pan, and S. Das, "Fractional order fuzzy control of hybrid power system with renewable generation using chaotic PSO," *ISA transactions*, vol. 62, pp. 19-29, 2016.
- [84] A. Tepljakov, E. A. Gonzalez, E. Patlenkov and J. Belikov, "Incorporation of fractional-order dynamics into an existing PI/PID DC motor control loop," *ISA transactions*, vol. 60, pp. 262-273, 2016.
- [85] M. Moafi, M. Marzband and M. Savaghebi, "Energy management system based on fuzzy fractional order PID controller for transient stability improvement in micro-grids with energy storage," *International Transactions on Electrical Energy Systems*, vol. 26, no. 10, pp. 2087-2106, 2016.
- [86] I. Dimeas, I. Petras, and C. Psychalinos, "New analog implementation technique for fractional-order controller: A DC motor control," *AEU-International Journal of Electronics and Communications*, vol. 78, pp. 192-200, 2017.
- [87] U. Thakar, V. Joshi, and V. Vyawahare, "Design of fractional-order PI controllers and comparative analysis of these controllers with linearized, nonlinear integer-order and nonlinear fractional-order representations of PMSM," *International Journal of Dynamics and Control*, vol. 5, no. 1, pp. 187-197, 2017.
- [88] R. El-Khazali, "Fractional-order controller design." *Computers & Mathematics with Applications*, vol. 66, no. 5, pp. 639-646, 2013.
- [89] A. G. Butkovskii, S. S. Postnov, and E. A. Postnova "Fractional integro-differential calculus and its control-theoretical applications. II. Fractional dynamic systems: modeling and hardware implementation," *Automation and Remote Control*, vol. 74, no. 5, pp. 725-749, 2013.
- [90] D. Wang, W. Li, and M. Guo, "Tuning of PI λ D μ controllers based on sensitivity constraint." *Journal of Process Control*, vol. 23, no. 6, pp. 861-867, 2013.

- [91] M. P. Aghababa, "Chaotic behavior in fractional-order horizontal platform systems and its suppression using a fractional finite-time control strategy," *Journal of Mechanical Science and Technology*, vol. 28, no. 5, pp. 1875-1880, 2014.
- [92] M. A. Rahimian, and M. S. Tavazoei, "Improving integral square error performance with implementable fractional-order PI controllers," *Optimal Control Applications and Methods*, vol. 35, no. 3, pp. 303-323, 2014.
- [93] B. Saidi, M. Amairi, S. Najjar and M. Aoun, "Bode shaping-based design methods of a fractional order PID controller for uncertain systems," *Nonlinear Dynamics*, vol. 80, no. 4, pp. 1817-1838, 2015.
- [94] P. Shah, and S. Agashe, "Review of fractional PID controller," *Mechatronics*, vol. 38, pp. 29-41, 2016.
- [95] X. Liu, "Optimization design on fractional order PID controller based on adaptive particle swarm optimization algorithm." *Nonlinear Dynamics*, vol. 84, no. 1, pp. 379-386, 2016.
- [96] C. I. Muresan, E. H. Dulf, and R. Both, "Vector-based tuning and experimental validation of fractional-order PI/PD controllers," *Nonlinear Dynamics*, vol. 84, no. 1, pp. 179-188, 2016.
- [97] K. Amoura, et al, "Closed-loop step response for tuning PID-fractional-order-filter controllers," *ISA transactions*, vol. 64, pp. 247-257, 2016.
- [98] S. Djennoune, and M. Bettayeb, "Optimal synergetic control for fractional-order systems," *Automatica*, vol. 49, no. 7, pp. 2243-2249, 2013.
- [99] W. Guo, Y. Song, L. Zhou and L. deng, "A novel model algorithmic controller with fractional order PID structure," *Intelligent Control and Automation (WCICA), 2012 10th World Congress on. IEEE*, Beijing, China, 6-8 July, 2012.
- [100] B. Maâmar, and M. Rachid, "IMC-PID-fractional-order-filter controllers design for integer order systems," *ISA transactions*, vol. 53, no. 5, pp. 1620-1628, 2014.
- [101] M. S. Tavazoei, and M. Tavakoli-Kakhki, "Compensation by fractional-order phase-lead/lag compensators," *IET Control Theory & Applications*, vol. 8, no.5, 319-329, 2014.

- [102] G. Zhong, H. Deng, and J. Li, "Chattering-free variable structure controller design via fractional calculus approach and its application," *Nonlinear dynamics*, vol. 81, no. 1-2, pp. 679-694, 2015.
- [103] C. Yin, Y. Cheng, Y. Q. Chen, B. Stark and S. Zhong, "Adaptive fractional-order switching-type control method design for 3D fractional-order nonlinear systems," *Nonlinear Dynamics*, vol. 82, no. 1-2, pp. 39-52, 2015.
- [104] I. S. Jesus, and R. S. Barbosa, "Genetic optimization of fuzzy fractional PD+ I controllers," *ISA transactions*, vol. 57, pp. 220-230, 2015.
- [105] R. Sharma, P. Gaur, and A. P. Mittal, "Design of two-layered fractional order fuzzy logic controllers applied to robotic manipulator with variable payload," *Applied Soft Computing*, vol. 47, pp. 565-576, 2016.
- [106] S. Debbarma, L. C. Saikia, and N. Sinha, "Automatic generation control using two degree of freedom fractional order PID controller," *International Journal of Electrical Power & Energy Systems*, vol. 58, pp. 120-129, 2014.
- [107] P. Dwivedi, S. Pandey, and A. Junghare, "Performance Analysis and Experimental Validation of 2-DOF Fractional-Order Controller for Underactuated Rotary Inverted Pendulum," *Arabian Journal for Science and Engineering*, vol. 42, no. 12, pp. 5121-5145, 2017.
- [108] D. Sierociuk, M. Macias and W. Malesza, "Analog modeling of fractional switched order derivative using different switching schemes," *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, vol. 3, no. 3, pp. 394-403, 2013.
- [109] D. K. Raju, B. S. Umre, A. S. Janghare and M. P. Thakre, "Fractional-order PI based STATCOM and UPFC controller to diminish sub-synchronous resonance," *Springer Plus*, vol. 5, no.1, pp. 1-20, 2016.
- [110] C. Copot, A. Burlacu, C. M. Lonescu, C. Lazar and R. D. Keyser, "A fractional order control strategy for visual servoing systems." *Mechatronics*, vol. 23, no. 7, pp. 848-855, 2013.
- [111] R. Azarmi, M. Tavakoli-Kakhki, A. K. Sedigh and A. Fatehi, "Analytical design of fractional order PID controllers based on the fractional set-point weighted structure: Case study in twin rotor helicopter," *Mechatronics*, vol. 31, pp. 222-233, 2015.

- [112] R. Caponetto, G. Dongola and F. Pappalardo, "Auto-tuning and fractional order controller implementation on hardware in the loop system," *Journal of Optimization Theory and Applications*, vol. 156, no. 1, pp. 141-152, 2013.
- [113] M. Tajjudin, S. F. Tahir and M. H. F. Rahiman, "Fractional-order PI controller with relay auto-tuning method," *Control and System Graduate Research Colloquium (ICSGRC), 2013 IEEE 4th. IEEE*, Shah Alam, Malaysia, 19-20 Aug., 2013.
- [114] S. A. Taher, M. H. Fini, and S. F. Aliabadi, "Fractional order PID controller design for LFC in electric power systems using imperialist competitive algorithm," *Ain Shams Engineering Journal*, vol. 5, no. 1, pp. 121-135, 2014.
- [115] S. Sondhi, and Y. V. Hote, "Fractional order PID controller for load frequency control," *Energy Conversion and Management*, vol. 85, pp. 343-353, 2014.
- [116] A. Dieng, M. F. Benkhoris, M. A. Ahmed and J. C. Le Claire, "Fault-tolerant control of 5-phase pmsg for marine current turbine applications based on fractional controller," *IFAC Proceedings*, vol. 47, no. 3, pp. 11950-11955, 2014.
- [117] C. Ismayil, R. S. Kumar, and T. K. Sindhu, "Optimal fractional order PID controller for automatic generation control of two-area power systems," *International Transactions on Electrical Energy Systems*, vol. 25, no. 12, pp. 3329-3348, 2015.
- [118] I. Pan and S. Das, "Kriging based surrogate modeling for fractional order control of microgrids," *IEEE Transactions on Smart grid*, vol. 6, no. 1, pp. 36-44, 2015.
- [119] Z. Chen, X. Yuan, B. Ji, P. Wang and H. Tian, "Design of a fractional order PID controller for hydraulic turbine regulating system using chaotic non-dominated sorting genetic algorithm II," *Energy Conversion and Management*, vol. 84, pp. 390-404, 2014.
- [120] S. Ghasemi, A. Tabesh, and J. Askari-Marnani, "Application of fractional calculus theory to robust controller design for wind turbine generators," *IEEE Transactions on Energy Conversion*, vol. 29, no. 3, pp. 780-787, 2014.
- [121] I. Pan, and S. Das, "Fractional-order load-frequency control of interconnected power systems using chaotic multi-objective optimization," *Applied Soft Computing*, vol. 29, pp. 328-344, 2015.
- [122] M. T. Özdemir, D. Ozturk, I. Eke, V. Celik and K. Y. Lee, "Tuning of Optimal Classical and Fractional Order PID Parameters for Automatic Generation Control

- Based on the Bacterial Swarm Optimization." *IFAC-Papers on Line*, vol. 48, no. 30, pp. 501-506, 2015.
- [123] S. Debbarma, and A. Dutta, "Utilizing electric vehicles for LFC in restructured power systems using fractional order controller," *IEEE Transactions on Smart Grid*, vol. 8, no. 6, pp. 2554-2564, 2016.
- [124] S. Sondhi and Y. V. Hote, "Fractional order PID controller for perturbed load frequency control using Kharitonov's theorem," *International Journal of Electrical Power & Energy Systems*, vol. 78, pp. 884-896, 2016.
- [125] S. P. Nangrani and S. S. Bhat, "Numerical study of optimized fractional-order controller for chaos control of nonlinear dynamical power system," *International Transactions on Electrical Energy Systems*, vol. 27, no. 8, pp. (2017).
- [126] T. Sangpet, and S. Kuntanapreeda, "Force Control of an Electrohydraulic Actuator Using a Fractional-Order Controller," *Asian Journal of Control*, vol. 15, no. 3, pp. 764-772, 2013.
- [127] S. D. Joshi, and D. B. Talange, "Integer & fractional order PID Controller for fractional order subsystems of AUV," *Industrial Electronics and Applications (ISIEA), 2013 IEEE Symposium on. IEEE*, Kuching, Malaysia, 22-25 Sept., 2013.
- [128] J. Zhao, J. Wang, and S. Wang, "Fractional order control to the electro-hydraulic system in insulator fatigue test device," *Mechatronics*, vol. 23, no. 7, pp. 828-839, 2013.
- [129] S. S. Bhase, and B. M. Patre., "Robust FOPI controller design for power control of PHWR under step-back condition," *Nuclear Engineering and Design*, vol. 274, pp. 20-29, 2014.
- [130] V. Feliu-Batlle, R. Revas- Perez and F. J. Castillo-Garcia, "A robust fractional order controller for an EAF electrode position system." *IFAC Proceedings*, vol. 47, no. 3, pp. 10670-10675, 2014.
- [131] C. I. Muresan, C. Ionescu, S. Folea and R. D. Keyser, "Fractional order control of unstable processes: the magnetic levitation study case," *Nonlinear Dynamics*, vol. 80, no. 4, pp. 1761-1772, 2015.

- [132] S. Folea, C. I. Muresan and R. D. Keyser, "Theoretical analysis and experimental validation of a simplified fractional order controller for a magnetic levitation system," *IEEE Transactions on Control Systems Technology*, vol. 24, no. 2, pp. 756-763, 2016.
- [133] A. S. Chopade, S. W. Kubalkar, A. S. Jungher. M. V. Aware and S. Das, "Design and implementation of digital fractional order PID controller using optimal pole-zero approximation method for magnetic levitation system," *IEEE/CAA Journal of Automatica Sinica*, pp. 1-12, 2016.
- [134] O. W. Abdulwahhab, and N. H. Abbas, "A New Method to Tune a Fractional-Order PID Controller for a Twin Rotor Aerodynamic System," *Arabian Journal for Science and Engineering*, vol. 42, no. 12, pp. 5179-5189, 2017.
- [135] A. Dumlu and K. Erenturk, "Trajectory Tracking Control for a 3-DOF Parallel Manipulator Using Fractional-Order $\text{PI}^{\lambda}\text{D}^{\mu}$ Control," *IEEE Transactions on Industrial Electronics*, vol. 61, no. 7, pp. 3417-3426, 2014.
- [136] N. Nikdel, M. Badamchizadeh, V. Azimirad and M. A. Nazari, "Fractional-order adaptive backstepping control of robotic manipulators in the presence of model uncertainties and external disturbances," *IEEE Transactions on Industrial Electronics*, vol. 63, no. 10, pp. 6249-6256, 2016.
- [137] G. Sun, and Z. H. Zhu, "Fractional order tension control for stable and fast tethered satellite retrieval," *Acta Astronautica*, vol. 104, no. 1, pp. 304-312, 2014.
- [138] V. Badri and M. S. Tavazoei, "Achievable performance region for a fractional-order proportional and derivative motion controller," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 11, pp. 7171-7180, 2015.
- [139] M. D. Patil, P. S. V. Nataraj, and V. A. Vyawahare, "Automated design of fractional PI QFT controller using interval constraint satisfaction technique (ICST)," *Nonlinear Dynamics*, vol. 69, no. 3, pp. 1405-1422, 2012.
- [140] R. K. Khadanga, S. Padhy, S. Panda and A. Kumar, "Design and Analysis of Tilt Integral Derivative controller for Frequency Control in Islanded Micro-grid: A Novel Hybrid Dragonfly and Pattern Search Algorithm Approach," *Arabian Journal of Science and Engineering*, vol. 43, no. 6, pp. 3103-3114, 2018.

- [141] K. Åström, and T. Hägglund, “The future of PID control”, *Control Engineering Practice*, vol. 9, no.11, pp.1163-1175, 2001.
- [142] K. Ogata, *Modern control engineering*. 4th ed. Englewood Cliffs, New Jersey.: Prentice-Hall, 2002.
- [143] T. Hägglund, and K. Åström, “Revisiting the Ziegler-Nichols Tuning Rules for PI Control,” *Asian Journal of Control*, vol. 4, no.4, pp.364-380, 2008.
- [144] W. Tan, J. Liu, T. Chen, and H. Marquez, “Comparison of some well-known PID tuning formulas,” *Computers & Chemical Engineering*, vol. 30, no. 9, pp.1416-1423, 2006.
- [145] A. Visioli, “Research Trends for PID Controllers,” *ActaPolytechnica*, vol. 52, no. 5, pp.144-150, 2012.
- [146] D. Maghade, and B. Patre, “Pole placement by PID controllers to achieve time domain specifications for TITO systems,” *Transactions of the Institute of Measurement and Control*, vol. 36, no. 4, pp.506-522, 2013.
- [147] Z. Gaing,” A Particle Swarm Optimization Approach for Optimum Design of PID Controller in AVR System,” *IEEE Transactions on Energy Conversion*, vol. 19, no.2, pp.384-391, 2004.
- [148] D. Kim, and J. Park, “Intelligent PID Controller Tuning of AVR System Using GA and PSO,” *Advances in Intelligent Computing, ICIC 2005, Lecture Notes in Computer Science*, Springer, Berlin, Heidelberg, vol. 3645, pp.366-375, 2005.
- [149] V. Mukherjee and S. P. Ghoshal, “Intelligent particle swarm optimized fuzzy PID controller for AVR system,” *Electric Power Systems Research*, vol. 77, no.12, pp.1689-1698, 2007.
- [150] A. Oonsivilai, and P. PAO-LA-OR, “Application of Adaptive Tabu Search for Optimum PID Controller tuning AVR System,” *WSEAS TRANSACTIONS on POWER SYSTEMS*, vol. 6, no. 3, pp.495-506, 2008.
- [151] L. dos Santos Coelho, & B. A. de Meirelles Herrera,” Quantum Gaussian particle swarm optimization approach for PID controller design in AVR system,” *In Systems, Man and Cybernetics (SMC 2008) IEEE International Conference on IEEE*, Singapore, Singapore, Singapore, 12-15 Oct. 2008.

- [152] H. Zhu, L. Li, Y. Zhao, Y. Guo and Y. Yang, "CAS algorithm-based optimum design of PID controller in AVR system," *Chaos, Solitons & Fractals*, vol. 42, no. 2, pp. 792-800, 2009.
- [153] S. M. A. Mohammadi, A. A. Gharaveisi, M. Mashinchi, & S. M. R. Rafiei, "New evolutionary methods for optimal design of PID controllers for AVR system," In *PowerTech, 2009 IEEE Bucharest*, Bucharest, Romania, 28 June-2 July 2009.
- [154] D. Devaraj, & D. Selvabala, "Real-coded genetic algorithm and fuzzy logic approach for real-time tuning of proportional–integral–derivative controller in automatic voltage regulator system," *IET generation, transmission & distribution*, vol. 3, no. 7, pp. 641-649, 2009.
- [155] L. dos Santos Coelho, "Tuning of PID controller for an automatic regulator voltage system using chaotic optimization approach," *Chaos, Solitons & Fractals*, vol. 39, no.4, pp. 1504-1514, 2009.
- [156] A. Shabib, A. Moslem, and A. Rashwan, "Optimal tuning of PID controller for AVR system using modified particle swarm optimization," *Proceedings of the 14th International Middle East Power Systems Conference (MEPCON'10)*, Cairo University, Egypt, December 19-21, 2010.
- [157] H. Gozde, and M. Taplamacioglu, "Comparative performance analysis of artificial bee colony algorithm for automatic voltage regulator (AVR) system," *Journal of the Franklin Institute*, vol. 348, no. 8, pp.1927-1946, 2011.
- [158] D. Kim, "Hybrid GA–BF based intelligent PID controller tuning for AVR system," *Applied Soft Computing*, vo. 11, no. 1, pp.11-22, 2011.
- [159] N. Madinehi, K. Shaloudegi, M. Abedi, & H. A. Abyaneh, "Optimum design of PID controller in AVR system using intelligent methods," In *PowerTech, 2011 IEEE Trondheim*, Trondheim, Norway, 19-23 June 2011.
- [160] S. Panda, B. Sahu, and P. Mohanty, "Design and performance analysis of PID controller for an automatic voltage regulator system using simplified particle swarm optimization," *Journal of the Franklin Institute*, vol. 349, no. 8, pp.2609-2625, 2012.

- [161] H. Shayeghi and J. Dadashpour, "Anarchic society optimization based PID control of an automatic voltage regulator (AVR) system," *Electrical and Electronic Engineering*, vol. 2, no. 4, pp. 199-207, 2012.
- [162] H. M. Hasanien, "Design optimization of PID controller in automatic voltage regulator system using Taguchi combined genetic algorithm method," *IEEE Systems Journal*, vol. 7, no. 4, pp. 825-831, 2013.
- [163] C. Li, H. Li, and P. Kou, "Piecewise function based gravitational search algorithm and its application on parameter identification of AVR system," *Neurocomputing*, vol. 124, pp.139-148, 2014.
- [164] Q. Jin, L. Qi, B. Jiang, and Q. Wang, "Novel improved cuckoo search for PID controller design," *Transactions of the Institute of Measurement and Control*, vol. 37, no. 6, pp.721-731, 2014.
- [165] O. Bendjehaba, "Continuous firefly algorithm for optimal tuning of PID controller in AVR system," *Journal of Electrical Engineering*, vol. 65, no. 1, pp. 44-49, 2014.
- [166] S. K. Verma, S. Yadav and S. K. Nagar, "Controlling of an automatic voltage regulator using optimum integer and fractional order PID controller," *In Computational Intelligence: Theories, Applications and Future Directions (WCI), 2015 IEEE Workshop on IEEE*, Kanpur, India, 14-17 Dec. 2015.
- [167] S. Chatterjee and V. Mukherjee, "PID controller for automatic voltage regulator using teaching-learning based optimization technique," *International Journal of Electrical Power & Energy Systems*, vol. 77, pp.418-429, 2016.
- [168] S. Anbarasi and S. Muralidharan, "Enhancing the Transient Performances and Stability of AVR System with BFOA Tuned PID Controller," *Journal of Control Engineering and Applied Informatics*, vol. 18, no. 1, pp. 20-29, 2016.
- [169] X. Li, Y. Wang, N. Li, M. Han, Y. Tang and F. Liu, "Optimal fractional order PID controller design for automatic voltage regulator system based on reference model using particle swarm optimization," *International Journal of Machine Learning and Cybernetics*, vol. 8, no. 5, pp. 1595-1605, 2017.

- [170] A. Sikander, P. Thakur, R. C. Bansal and S. Rajasekar, "A novel technique to design cuckoo search based FOPID controller for AVR in power systems," *Computers & Electrical Engineering*, 2017. (Inpress)
- [171] S. Mirjalili, "The Ant Lion Optimizer," *Advances in Engineering Software*, vol. 83, pp.80-98, 2015.
- [172] R. Krohling, and J. Rey, "Design of optimal disturbance rejection PID controllers using genetic algorithms," *IEEE Transactions on Evolutionary Computation*, vol. 5, no. 1, pp.78-82, 2001.
- [173] N. Bouarroudj, „A Hybrid Fuzzy Fractional Order PID Sliding-Mode Controller design using PSO algorithm for interconnected Nonlinear Systems,“ *Journal of Control Engineering and Applied Informatics*, vol. 17, no. 1, pp. 41-51, 2015.
- [174] A. J. Al Gizi, and M. Mustafa, "Hybrid Neural Genetic and fuzzy logic approach for real-time tuning of PID Controller in AVR System," *Life Science Journal*, vol. 10, no.4, pp. 2714-2714, 2013.
- [175] H. Lin, H. Su, Z. Shu, Z. G. Wu, and Y. Xu, "Optimal estimation in UDP-like networked control systems with intermittent inputs: stability analysis and suboptimal filter design," *IEEE Transactions on Automatic Control*, vol. 61, no. 7, pp. 1794-1809, 2016.
- [176] R. Pradhan, P. Patra and B. B. Pati, "Comparative studies on design of fractional order proportional integral differential controller," *International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, Jaipur, India, Sept 21-24, 2016.
- [177] J. K. Pradhan, A. Ghosh and C. N. Bhende, "Small-signal modeling and multivariable PI control design of VSC-HVDC transmission link," *Electric Power Systems Research*, vol. 144, pp. 115-126, 2017.
- [178] J. K. Pradhan and A. Ghosh, "Multi-input and multi-output proportional-integral-derivative controller design via linear quadratic regulator-linear matrix inequality approach," *IET Control Theory & Applications*, vol. 9, no. 14, pp. 2140-2145, 2015.
- [179] D. Sain, S. K. Swain and S. K. Mishra, "TID and I-TD controller design for magnetic levitation system using genetic algorithm," *Perspectives in Science*, vol. 8, pp. 370-373, 2016.

- [180] S.G.Samko, A.A. Kilbas and O.I. Marichev,“ Fractional integrals and derivatives,“ *Theory and Applications*, Gordon and Breach, Yverdon, 1993.
- [181] M. P. Aghababa, „Optimal design of fractional-order PID controller for five bar linkage robot using a new particle swarm optimization algorithm,“ *Soft Computing*, vol. 20, no. 10, pp. 4055-4067, 2016.
- [182] S.E. Hamamci, “An algorithm for stabilization of fractional-order time delay systems using fractional-order PID controllers.,“*IEEE Transactions on Automatic Control*, vol. 52, no. 10, pp.1964-1969, 2007.
- [183] H. Ramezani, S. Balochian, and A. Zare, “Design of optimal fractional-order PID controllers using particle swarm optimization algorithm for automatic voltage regulator (AVR) system,“ *Journal of Control, Automation and Electrical Systems*, vol. 24, no. 5, pp. 601-611, 2013.
- [184] A. Biswas, S. Das, A. Abraham and S. Dasgupta, “Design of fractional-order PI λ D μ controllers with an improved differential evolution,“ *Engineering applications of artificial intelligence*, vol. 22, no. 2, pp. 343-350, 2009.
- [185] A. Ateş and C. Yeroglu, “Optimal fractional order PID design via Tabu Search based algorithm,“ *ISA transactions*, vol. 60, pp. 109-118, 2016.
- [186] S. K. Verma, S. Yadav and S. K. Nagar, „Optimization of Fractional Order PID Controller Using Grey Wolf Optimizer,“ *Journal of Control, Automation and Electrical Systems*, vol. 28, no. 3, pp. 314-322, 2017.
- [187] J. Y. Cao, J. Liang and B. G. Cao, “Optimization of fractional order PID controllers based on genetic algorithms,“ *International Conference on In Machine Learning and Cybernetics, IEEE*, Guangzhou, China, China, 18-21 Aug. 2005.
- [188] A. A. Zamani, S. Tavakoli and S. Etedali, “Fractional order PID control design for semi-active control of smart base-isolated structures: A multi-objective cuckoo search approach,“ *ISA transactions*, vol. 67, pp. 222-232, 2017.
- [189] K. Oprzędkiewicz and K. Dziejcz, “A Tuning of a Fractional Order PID Controller with the Use of Particle Swarm Optimization Method,“*Artificial Intelligence and Soft Computing, ICAISC 2017, Lecture Notes in Computer Science*, vol. 10245. Springer, Cham, 2017.

- [190] M. Raju, L. C. Saikia, and N. Sinha, "Automatic generation control of a multi-area system using ant lion optimizer algorithm based PID plus second order derivative controller," *International Journal of Electrical Power & Energy Systems*, vol. 80, pp. 52-63, 2016.
- [191] V. H. Haji and C. A. Monje, "Fractional order fuzzy-PID control of a combined cycle power plant using Particle Swarm Optimization algorithm with an improved dynamic parameters selection," *Applied Soft Computing*, vol. 58, pp. 256-264, 2017.
- [192] G. Altintas and Y. Aydin, "A comparison on genetic algorithm based integer order and fractional order PID control of magnetic bearing system," *International Conference on In Mechatronics (ICM), IEEE*, Churchill, VIC, Australia, 13-15 Feb. 2017.
- [193] A. Shata, R. Hamdy, A. Abdel-Khalik and I. El-Arabawy, "A particle swarm optimization for optimum design of fractional order PID Controller in Active Magnetic Bearing systems," *2016 Eighteenth International Middle East on In Power Systems Conference (MEPCON)*, Cairo, Egypt, 27-29 Dec. 2016.
- [194] L. Chaib, A. Choucha and S. Arif, "Optimal design and tuning of novel fractional order PID power system stabilizer using a new metaheuristic Bat algorithm," *Ain Shams Engineering Journal*, vol. 8, no. 2, pp. 113-125, 2017.
- [195] Y. Zhang, & J. Li, "Fractional-order PID controller tuning based on genetic algorithm," *2011 International Conference on In Business Management and Electronic Information (BMEI), IEEE*, Guangzhou, China, 13-15 May 2011.
- [196] M. Moafi, M. Marzband, M. Savaghebi and J. M. Guerrero, "Energy management system based on fuzzy fractional order PID controller for transient stability improvement in microgrids with energy storage," *International Transactions on Electrical Energy Systems*, vol. 26, no. 10, pp. 2087-2106, 2016.
- [197] M. Zamani, M. Karimi-Ghartemani, N. Sadati, and M. Parniani, "Design of a fractional order PID controller for an AVR using particle swarm optimization," *Control Engineering Practice*, vol. 17, no. 12, pp. 1380-1387, 2009.
- [198] K. Łapa, "Elastic FOPID+FIR Controller Design Using Hybrid Population-Based Algorithm," *Proceedings of 37th International Conference on Information Systems*

Architecture and Technology – ISAT 2016 – Part II. Advances in Intelligent Systems and Computing, vol. 522. Springer, Cham, 2017.

- [199] E. Gupta and A.Saxena, “Performance Evaluation of Ant Lion Optimizer Based Regulator in Automatic Generation Control of Interconnected Power System,“ *Journal of Engineering*, vol. 2016, Article ID 4570617, 14 pages, 2016.
- [200] V. K., Kamboj, A. Bhadoria & S. K. Bath, “Solution of non-convex economic load dispatch problem for small-scale power systems using ant lion optimizer,“ *Neural Computing and Applications*, vol. 28, no. 8, pp. 2181-2192, 2016.
- [201] E. S. Ali, S. A. Elazim and A. Y. Abdelaziz, “Ant Lion Optimization Algorithm for Renewable Distributed Generations,“ *Energy*, vol. 116, pp. 445-458, 2016.
- [202] E. S. Prasad and B. S. Ram, “Ant-Lion Optimizer algorithm based FOPID controller for Speed control and Torque ripple minimization of SRM Drive System,“ *International conference on Signal Processing, Communication, Power and Embedded System (SCOPEs)-2016*.
- [203] N. Chopra and S.Mehta, “Multi-objective optimum generation scheduling using Ant Lion Optimization,“ *In India Conference (INDICON), 2015 Annual IEEE* , New Delhi, India, 17-20 Dec. 2015.
- [204] S. Mirjalili, S. M. Mirjalili and A. Lewis, “Grey wolf optimizer,“ *Advances in Engineering Software*, vol. 69, pp. 46-61, 2014.
- [205] S. K. Verma, S. Yadav and S. K. Nagar, “Controlling of an automatic voltage regulator using optimum integer and fractional order PID controller,“ *2015 IEEE Workshop on In Computational Intelligence: Theories, Applications and Future Directions (WCI)*, Kanpur, India, 14-17 Dec. 2015.
- [206] B. Yang, X. Zhang, T. Yu, H. Shu, and Z. Fang, “Grouped grey wolf optimizer for maximum power point tracking of doubly-fed induction generator based wind turbine,“ *Energy Conversion and Management*, vol. 133, pp. 427-443, 2017.
- [207] V. Soni, G. Parmar, M. Kumar and S. Panda, “Hybrid grey wolf optimization-pattern search (HGWO-PS) optimized 2dof-pid controllers for load frequency control (LFC) in interconnected thermal power plants,“ *ICTACT Journal on Soft Computing*, vol. 6, no. 4, pp.1244-1256, 2016.

- [208] S. Yadav, S. K. Verma, and S. K. Nagar, "Reduction and controller design for fractional order Spherical tank system using GWO," *International Conference on In Emerging Trends in Electrical Electronics & Sustainable Energy Systems (ICETEESES), IEEE*, Sultanpur, India, 11-12 March 2016.
- [209] S. Mohanty, B. Subudhi, and P. K. Ray, "A new MPPT design using grey wolf optimization technique for photovoltaic system under partial shading conditions," *IEEE Transactions on Sustainable Energy*, vol. 7, no. 1, pp. 181-188, 2016.
- [210] N. Jayakumar, S. Subramanian, S. Ganesan, and E. B. Elanchezhian, "Grey wolf optimization for combined heat and power dispatch with cogeneration systems," *International Journal of Electrical Power & Energy Systems*, vol. 74, 252-264, 2016.
- [211] M. R. Shakarami, and I. F. Davoudkhani, "Wide-area power system stabilizer design based on Grey Wolf Optimization algorithm considering the time delay," *Electric Power Systems Research*, vol. 133, pp. 149-159, 2016.
- [212] H. M. Song, M. H. Sulaiman, and M. R. Mohamed, "An application of grey wolf optimizer for solving combined economic emission dispatch problems," *International Review on Modelling and Simulations (IREMOS)*, vol. 7, no. 5, pp. 838-844, 2014.
- [213] Y. Sharma, and L. C. Saikia, "Automatic generation control of a multi-area ST-Thermal power system using Grey Wolf Optimizer algorithm based classical controllers," *International Journal of Electrical Power & Energy Systems*, vol. 73, pp. 853-862, 2015.
- [214] S. Mirjalili, "Moth-flame optimization algorithm: A novel nature-inspired heuristic paradigm," *Knowledge-Based Systems*, vol. 89, pp. 228-249, 2015.
- [215] D. Allam, D. A. Yousri and M. B. Eteiba, "Parameters extraction of the three diode model for the multi-crystalline solar cell/module using Moth-Flame Optimization Algorithm," *Energy Conversion and Management*, vol. 123, pp. 535-548, 2016.
- [216] I. N. Trivedi, P. Jangir, S. A. Parmar and N. Jangir, "Optimal power flow with voltage stability improvement and loss reduction in power system using Moth-Flame Optimizer," *Neural Computing and Applications, Springer*, pp.1-16, 2016.

- [217] S. S. Chauhan, and P. Kotecha, "Single level production planning in petrochemical industries using Moth-flame optimization," *Proceeding In Region 10 Conference (TENCON), 2016 IEEE*, Singapore, Singapore, 09 February 2017.
- [218] H. Buch, I. N. Trivedi, and P. Jangir, "Moth flame optimization to solve optimal power flow with non-parametric statistical evaluation validation," *Cogent Engineering*, vol. 4, no.1, 1286731, 2017.
- [219] Quanser Innovative edutech," Heat flow laboratory: User Manual, "Ontario: Quanser Inc., 2012.
- [220] Quanser Innovative edutech,"Heat flow experiment: User Manual," Ontario: Quanser Inc., 2009.
- [221] U. Al-Saggaf, I. Mehedi, M. Bettaye, R. Mansouri, "Fractional-order controller design for a heat flow process", *Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering*, vol. 230, no. 7, pp. 680-691, 2016.
- [222] R. C Zhao, P. K. Wong, Z. C. Xie and J. Zhao," Real-time weighted multi-objective model predictive controller for adaptive cruise control systems", *International Journal of Automotive Technology*, (Springer), vol.18, no.2, pp.279-292, April- 2017.
- [223] M. H. Lee, H. G. Park, S. H. Lee, K. S. Yoon, and K. S. Lee, "An adaptive cruise control system for autonomous vehicles", *International Journal of Precision Engineering and Manufacturing*, (Springer), vol.14, no.3, pp.373-380, March-2013.
- [224] Z. Situm, D. Pavkovic, and B. Novakovic, "Servo pneumatic position control using fuzzy PID gain scheduling." *Journal of dynamic systems, measurement, and control*, vol.126, no. 2, pp. 376-387, 2004.
- [225] D. Corona and B. De Schutter, "Adaptive cruise control for a SMART car: A comparison benchmark for MPC-PWA control methods", *IEEE Transactions on Control Systems Technology*, vol. 16, no.2, pp.365-372, March-2008.
- [226] H. Fukuoka, Y. Shirai and K. Yamada, "Driving support system adaptive to the state of surrounding vehicle drivers," *2009 IEEE Symposium on Intelligent Vehicles*, Xi'an, China, 3-5 June 2009.
- [227] N. Vedam, I. Diaz-Rodriguez and S.P. Bhattacharya," A novel approach to the design of controllers in an automotive cruise-control system", *40th Annual Conference*

- of the IEEE on Industrial Electronics Society (IECON '14)* , pp. 2927-2932, USA, 29 Oct – 01 Nov, 2014.
- [228] R. Muller and G. Nocker, "Intelligent cruise control with fuzzy logic," *Proceedings of the Intelligent Vehicles '92 Symposium*, pp. 173-178, Detroit, MI, 29 June-1 July 1992.
- [229] A. Morand, X. Moreau, P. Melchior, M. Moze and F.Guillemard, "CRONE Cruise Control System", *IEEE Transactions on Vehicular Technology*, Vol. 65, no.1, pp. 15-17, Jan.2016.
- [230] H. Suzuki and T. Nakatsuji, "Effect of adaptive cruise control on traffic throughput: Numerical example on actual freeway corridor", *Society of Automotive Engineers of Japan Inc.*, (Elsevier), vol. 24, no. 4, pp.403-410, Oct. 2003.
- [231] M. K. Rout, D. Sain, S. K. Swain and S. K. Mishra, "PID controller design for cruise control system using genetic algorithm," *International Conference on Electrical, Electronics, and Optimization Techniques (ICEEOT'16)*, Chennai, India, pp. 4170-4174, 3-5 March, 2016.
- [232] K. Osman, M. F. Rahmat and M. A. Ahmad, "Modelling and controller design for a cruise control system," *5th International Colloquium on Signal Processing & Its Applications*, pp. 254-258, Kuala Lumpur, 6-8 March,2009.
- [233] S. Miyata, T. Nakagami, S. Kobayashi, T. Izumi, H. Naito, A. Yanou and S. Takehara," Improvement of adaptive cruise control performance," *EURASIP Journal on Advances in Signal Processing*2010, no. 1, 2010.
- [234] Chengqun Qiu, "A design of automobile cruise control system based on fuzzy PID", International Conference on *Information Science, Electronics and Electrical Engineering (ISEEE)*,Sapporo, Japan, pp.450-453, 26-28 April. 2014
- [235] R. Rajamani and C. Zhu, "Semi-Autonomous Adaptive Cruise Control Systems", *IEEE Trans. on Vehicular Technology*, Vol. 51, NO. 5, pp.1186-1192, Sept. 2002,
- [236] V. Milanés, S. E. Shladover, J. Spring, C. Nowakowski, H. Kawazoe, and M. Nakamura, "Cooperative Adaptive Cruise Control in Real Traffic Situations" *IEEE Trans. On Intelligent Transportation Systems*, Vol. 15, No. 1, pp.296-305, Feb. 2014,
- [237] R.S. Barbosa, J.A.T. Machado, I.M. Ferreira, "Tuning of PID controller based on Bode's ideal transfer function," *Nonlinear Dynamics*, vol. 38, pp. 305–311, 2004.

- [238] Z. Dong-Li, T. Ying-Gan, G. Xin-Ping, "Optimum design of fractional order PID controller for an AVR system using improved artificial bee colony algorithm," *Acta Automotica Sinica*, vol. 40, pp. 973–979, 2014.
- [239] K. Ranjbaran, M. Tabatabaei, "Fractional order [PI], [PD] and [PI] [PD] controller design using Bode's integrals," *International Journal of Dynamics and Control*, vol. 6, no.1, pp. 200-212, 2017.
- [240] K. B. Oldham and J. Spanier, "The fractional Calculus," Academic Press, New York, London, 1974.
- [241] D.H. Wolpert and W.G. Macready, "No free lunch theorem for optimization," *IEEE transactions on evolutionary computation*, vol. 1, no. 1, pp. 67-82, 1997.
- [242] R. Pradhan, S. K. Majhi, J. K. Pradhan and B. B Pati, "Performance Evaluation of PID Controller for an Automobile Cruise Control System using Ant Lion Optimizer," *Engineering Journal (Eng. J.)*, vol. 21, no. 5, pp. 347-361, 2017.
- [243] A. Oustaloup, "From fractality to non-integer derivation through recursivity, a property common to these two concepts: A fundamental idea for a new process control strategy," *Proceeding of 12th IMACS World Congress*, Paris, France, Vol. 3, pp. 203–208, July 18–22, 1988.
- [244] H. Fatoorehchi, H. Abolghasemi and R. Zarghami, "Analytical approximate solutions for a general nonlinear resistor–nonlinear capacitor circuit model," *Applied Mathematical Modelling*, vol. 39, no. 19, pp. 6021-6031, 2015.
- [245] G. González-Parra, A. J. Arenas and L. Jódar, "Piecewise finite series solutions of seasonal diseases models using multistage Adomian method," *Communications in Nonlinear Science and Numerical Simulation*, vol. 14, no. 11, pp. 3967-3977, 2009.
- [246] H. Fatoorehchi, R. Zarghami, H. Abolghasemi and R. Rach, "Chaos control in the cerium-catalyzed Belousov–Zhabotinsky reaction using recurrence quantification analysis measures," *Chaos, Solitons & Fractals*, vol. 76, pp. 121-129, 2015.
- [247] H. Fatoorehchi, H. Abolghasemi, R. Zarghami and R. Rach, "Feedback control strategies for a cerium-catalyzed Belousov–Zhabotinsky chemical reaction system," *The Canadian Journal of Chemical Engineering*, vol. 93, vol. 7, pp.1212-1221, 2015.

- [248] A. A. Kesarkar and N. Selvaganesan, "Tuning of optimal fractional-order pid controller using an artificial bee colony algorithm," *Systems Science & Control Engineering*, vol. 3, no. 1, pp. 99-105, 2015.
- [249] S. K. Jha, A. K. Yadav, P. Gaur, J. R. Gupta, H. Parthasarathy, "Robust and optimal control analysis of sun seeker system." *Journal of Control Engineering and Applied Informatics*, vol. 16, no. 1, pp. 70-79, 2014.
- [250] D. Karthikaikannan and G. Ravi, "Bio-Inspired Algorithms for Voltage profile improvement and Loss Reduction using Multi-Type FACTS Devices", *European Journal of Scientific Research*, vol. 100, no 4, pp.655-665, 2013.
- [251] P. Roy, B. Kar, and B. K. Roy, "Fractional order PI-PD control of liquid level in coupled two tank system and its experimental validation", *Asian Journal of Control*, vol. 19, no. 5, pp. 1–11, 2017.
- [252] J. Pal, B. Sarvesh, M. K. Ghosh, "An algebraic method for controller design", *Control Theory and Advanced Technology*, vol. 10, no. 4, pp 2125-2131, 1995.
- [253] P. R. Ouyang, W. Zhang, M. M. Gupta, "PD-type on-line learning control for systems with state uncertainties and measurement disturbances", *Control and Intelligent Systems*, vol. 35, no.4, pp. 351- 359, 2007.
- [254] S. Commuri and R. Fierro, "Guest Editorial: Special Issue on Unmanned Autonomous Vehicles," *Journal of Intelligent Robotic Systems*, vol. 56, no. 1-2, 2009.
- [255] A. W. Lodwick and J. Kacprzyk, "Fuzzy Optimization: Recent Advances and Applications", Vol. 254. Springer, 2010.