



Dr. Sonalika Mishra – Ph.D.

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(JOINED THE INSTITUTE IN 20TH NOV, 2023)
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RESEARCH INTERESTS

- Power system, Microgrid, LFC
- Control Theory, Optimization
- Electric Vehicle

ACADEMIC QUALIFICATIONS

- Ph. D. (VSSUT, Burla, India)
- M. Tech. (Electrical Engineering) VSSUT Burla, Odisha, India

Teaching Experience/Industrial Experience/Research Experience

Teaching Experience – 2 years

Research Experience – 5 years

PUBLICATIONS

JOURNALS

1. Sonalika Mishra et.al. 2020. Design and analysis of 2dof-PID controller for frequency regulation of multi-microgrid using hybrid dragonfly and pattern search algorithm. *Journal of Control, Automation and Electrical Systems*, 31(3), 813-827 (2020) **(SCI)**
2. Sonalika Mishra et.al, MVO optimized hybrid FOPID-LQG controller for load frequency control of an AC micro-grid system. *World Journal of Engineering*. 2020 **(SCOPUS)**
3. Sonalika Mishra et.al, Performance analysis of modified sine cosine optimized multistage FOPD-PI controller for load frequency control of an islanded microgrid system. *Journal of International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, 34(6), p.e2923.**(SCI)**
4. Sonalika Mishra et.al. Novel load frequency control scheme of hybrid power systems employing interline power flow controller and redox flow battery. *Energy Sources, Part A: Recovery, Utilization, and environmental effects*, 1-19, (2021). **(SCI)**
5. Sonalika Mishra et.al. Performance analysis of multistage PID controller for frequency regulation of multi microgrid system using atom search optimisation. *International Journal of Ambient Energy*, pp.1- 16.(2022)**(SCOPUS)**
6. Sonalika Mishra et. Al. Dragonfly algorithm and Pattern search optimized adaptive fuzzy PID controller for frequency regulation of multi microgrid system using Henkel matrix based reduced-order model. *International Journal of Numerical Modelling: Electronic Networks, Devices and Fields*, p.e3029. **(2023) (SCI)**
7. Sonalika Mishra et. al. Modified Multi verse optimiser technique based two degree of freedom fuzzy PID controller for frequency control of microgrid system with hydrogen aqua electrolyzer fuel cell unit. *Neural computing and application*, 34-21, 18805-18821, (2022) **(SCI)**
8. Pratap Chandra Nayak and Sonalika Mishra et. al. Performance analysis of hydrogen aqua equaliser fuel-cell on AGC of wind-hydro-thermal power systems with sunflower algorithm optimised fuzzy-PDFPI controller. *International Journal of Ambient Energy*, 43(1),3454-3467. (2022) **(SCOPUS)**
9. Prakash chandra Sahu and sonalika mishra et.al. Improved salp swarm algorithm optimised type II fuzzy controller for load frequency control of multi area islanded microgrid system. *Sustainable energy grid and networks*, 16, 380-392. (2018)**(SCI)**
10. Pratap Chandra Nayak and sonalika Mishra et.al. Hybrid whale optimization algorithm with simulated annealing for load frequency controller design of hybrid power system. *Soft Computing*,1-24. (2023) **(SCI)**
11. Sonalika Mishra et.al. Design and analysis of time varying derivative fractional order PID controller for frequency regulation of shipboard microgrid system. (2024) **eSCI and SCOPUS**

CONFERENCE PAPERS PRESENTED

1. Sonalika Mishra et. a. 2021, January. Model predictive controller based load frequency control of isolated microgrid system integrated to plugged-in electric vehicle. In *2021 1st Odisha International Conference on Electrical Power Engineering, Communication and Computing Technology (ODICON)* (1-5). IEEE.
2. Sonalika Mishra et. al., February. Secondary load frequency control of an islanded microgrid by SSA optimized hybrid PID-LQG controller. In *2020 International Conference on Renewable Energy Integration into Smart Grids: A Multidisciplinary Approach to Technology Modelling and Simulation (ICREISG)* (153-157). IEEE.
3. Sonalika Mishra et. al., 2020, December. Frequency regulation of an islanded microgrid integrated by virtual inertia control. In *2020 IEEE International Symposium on Sustainable Energy, Signal Processing and Cyber Security (iSSSC)* (1-4). IEEE.
4. Sonalika Mishra et. al. 2020, February. Implementation of a hybrid cuckoo search and pattern search algorithm for frequency control of microgrid system. In 2020 international conference on renewable energy integration into smart grids. *A Multidisciplinary Approach to Technology Modelling and Simulation (ICREISG)* (208-211). IEEE
5. Sonalika Mishra et. al Implementation of a cuckoo search and pattern search algorithm for frequency control of microgrid system. In 2020 international conference on renewable energy integration into smart grids. *A Multidisciplinary Approach to Technology Modelling and Simulation (ICREISG)* (208-211). IEEE
6. Ashirbad Behera and sonalika Mishra, Coordinated Frequency Regulation of microgrid system using TLBO based FOPID and ESS Devices, 2nd International conference on Power, Signal and Information Technology (APSIT-2023). IEEE
7. Priyabrata Mishra, Sonalika Mishra and Biresk Kumar Dakua, A comparison between PIDD² and PIDD^a controller for the performance enhancement of AVR system, International Conference on sustainable power and energy research (ICSPER) 2024, (SPRINGER)