

## Enhancing the Dynamic Performance of Grid-Tied Inverters Using Manta Ray Foraging Algorithm

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**Abstract :** Three phase grid-tied inverters are widely employed in micro-grids (MGs) as interphase between DC and AC systems. These inverters are usually controlled through standard decoupled d-q vector control strategy based on proportional integral (PI) controllers. Recently, advanced meta-heuristic optimization techniques have been used instead of deterministic methods to obtain optimum PI controller parameters. This paper provides a comparative study between the performance of the global Porcellio Scaber algorithm (GPSA) based PI controller and Manta Ray foraging optimization (MRFO) based PI controller.

**Keywords :** micro-grids, optimization techniques, grid-tied inverter control, PI controller

**Conference Title :** ICITSE 2021 : International Conference on Innovative Technology and Sustainability Engineering

**Conference Location :** Dubai, United Arab Emirates

**Conference Dates :** November 08-09, 2021