Heuristic and Metaheuristic Optimization Techniques with Application to Power Systems

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Abstract: - The development of modern wide-area power systems, as well as recent trends towards the creation of sustainable energy systems have given birth to complex studies addressing technical, but also economical and environmental, aspects related to simple or multi-objective optimization problems. Recently, heuristic and metaheuristic approaches that apply combinations of different heuristics with or without traditional search and optimization techniques were proposed to solve such problems. This paper provides basic knowledge about most widely used (meta)heuristic optimization techniques, and their application in optimization problems in power systems.