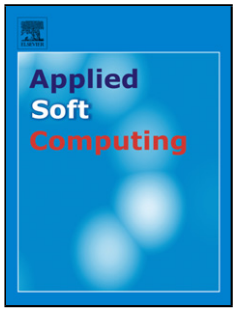

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Orthogonal learning competitive swarm optimizer for economic dispatch problems

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Highlights

- An orthogonal learning competitive swarm optimizer (OLCSO) is proposed for economic dispatch (ED) problems.
- An orthogonal learning strategy is developed to provide a systematic searching engine for OLCSO.
- 24 numerical benchmark functions are first employed to verify OLCSO.
- OLCSO is then applied to three convex and non-convex ED cases with diverse characteristics.
- OLCSO is highly competitive with some state-of-the-art algorithms.

Abstract

Power system economic dispatch (ED), mathematically, is a typical complex nonlinear multivariable strongly coupled optimization problem with equality and inequality constraints, especially considering the valve-point effects. In this paper, a novel variant of competitive swarm optimizer (CSO) referred to as OLCSO is proposed to solve both