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Link-Cell Method for Evolutionary Multi-Modal Optimization Application in Dynamic Evolutionary Clustering

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ABSTRACT. Evolutionary algorithms can be successfully used for solving multi-modal optimization problems. Inspired from Computational Physics a Link-Cell-based method is proposed in order to obtain improved evolutionary multi-modal optimization models. Recently a new evolutionary search and multi-modal optimization metaheuristics - called Genetic Chromodynamics (GC) - has been proposed and used to derive new evolutionary algorithms. Based on the GC metaheuristics a new dynamic evolutionary clustering technique has been developed. The proposed Link-Cell technique is combined with GC. In this way a new evolutionary multi-modal optimization model is obtained. This model is applied to GC-based dynamic clustering method (GCDC) and a new Link-Cell-based GCDC algorithm is developed. Some numerical experiments are described.

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