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Abstract
English Abstract:
Based on the modeling of the annealing process of solids, simulated annealing is one of the major design algorithms for diffractive optical elements. The most important characteristic of the simulated annealing — a nonlinear optimization algorithm is that it can achieve near global minimum of the cost function. To develop a simulated annealing algorithm tailored to the design of diffractive optical elements, it is greatly desired to understand the distribution of the value of cost function and the behavior of the simulated annealing algorithm .In this research cost distribution and annealing behavior are studied. However, the study is mainly limited to one-dimensional diffractive optical elements, due to the tremendous computing power required for two-dimensional diffractive optical elements. Furthermore, we study the effects of various parameters in the cooling schedule of the simulated annealing algorithm for both one-dimensional and two-dimensional diffractive optical elements and try to interpret these effects through the knowledge obtained form the above study about cost distribution and annealing behavior.
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