Molecular solutions to the binary integer programming problem based on DNA computation

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Abstract

Binary optimization is a widely investigated topic in integer linear programming. This study proposes a DNA-based computing algorithm for solving the significantly large binary integer programming (BIP) problem. The proposed approach is based upon Adleman and Lipton’s DNA operations to solve the BIP problem. The potential of DNA computation for the BIP problem is promising given the operational time complexity of $O(n^k)$. 

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