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## The properties of probabilistic simple regular sticker system  (Conference Paper)

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### Abstract                                                     ⌄ View references (10)

A mathematical model for DNA computing using the recombination behavior of DNA molecules, known as a sticker system, has been introduced in 1998. In sticker system, the sticker operation is based on the Watson-Crick complementary feature of DNA molecules. The computation of sticker system starts from an incomplete double-stranded sequence. Then by iterative sticking operations, a complete double-stranded sequence is obtained. It is known that sticker systems with finite sets of axioms and sticker rule (including the simple regular sticker system) generate only regular languages. Hence, different types of restrictions have been considered to increase the computational power of the languages generated by the sticker systems. In this paper, we study the properties of probabilistic simple regular sticker systems. In this variant of sticker system, probabilities are associated with the axioms, and the probability of a generated string is computed by multiplying the probabilities of all occurrences of the initial strings. The language are selected according to some probabilistic requirements. We prove that the probabilistic enhancement increases the computational power of simple regular sticker systems. © 2015 AIP Publishing LLC.

### Author keywords

computational power    DNA computing    probability    regular language    sticker system

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