Summary: In the paper, we investigate two problems on strings. The first one is the String matching problem, and the second one is the String comparing problem. We provide a quantum algorithm for the String matching problem that uses exponentially less quantum memory than existing ones. The algorithm uses the hashing technique for string matching, quantum parallelism, and ideas of Grover’s search algorithm. Using the same ideas, we provide two algorithms for the String comparing problem. These algorithms also use exponentially less quantum memory than existing ones. Additionally, the second algorithm works exponentially faster than the existing one.

For the entire collection see [Zbl 1495.65002].

MSC:
68Q12 Quantum algorithms and complexity in the theory of computing
68W32 Algorithms on strings

Full Text: DOI arXiv

References:


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