**Abstract**

We provide a series of quantum algorithms from the less elaborate to the most complex one. However, the last and more elaborate of these quantum algorithms has running time polynomial at the worst case for all inputs. It is based on a classical deterministic polynomial-time algorithm, which is presented rigorously. The latter proves indirectly that **P** = **NP** since the Sub-Graph Isomorphism Problem is **NP**-complete**.** (A detailed study of the **P** vs. **NP**, one can find in one of my papers to be published in the *Nature Communications* journal.) Therefore it is shown that the class **NP** belongs to the **BQP** quantum complexity class for **NP** = **P** and **P** is in **BQP**. We analyzed the most general and complicated cases of pairs of input graphs (A, B), that can appear as instances of the problem, where B's isomorphism into A is tested. Finally, we prove that the last quantum algorithm could run significantly faster than the classical counterpart on all possible instances (A, B). Hence theoretically, we prove the supremacy of Quantum Computing over Classical Computing for any **NP**-classically computable problem over all of its instances. This proves the theoretical supremacy of quantum computing of the classical **NP** computable problems. It remains quantum computers will be constructed on a broad scale in the future so that these results to apply.