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**Implementing quantum fourier transform using three qubits****Mouhcine Yachi***Chouaib Doukkali University, Morocco*

Using the circulant symmetry of a Hamiltonian describing three qubits, we realize the quantum Fourier transform. This symmetry allows us to construct a set of eigenvectors independently on the magnitude of physical parameters involved in the Hamiltonian and as a result, the entanglement will be maintained. The realization will be leaned on trapped ions and the gate implementation requires an adiabatic transition from each spin product state to Fourier modes. The fidelity was numerically calculated and the results show important values. Finally, we discuss the acceleration of the gate by using the counter-driving field.

**Biography**

Mouhcine Yachi, currently a third-year PhD student at the Faculty of Sciences, Chouaib Doukkali University. At 28 years old, he have authored a paper in the Journal of Physics A: Mathematical and Theoretical.