

“PRETEND MAGNETIC WALL” TUNNELLING FOR LARGE-SCALE OF TELEPORTATION***Lie Chun Pong**

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Received 11th September 2025; **Accepted** 14th October 2025; **Published online** 17th November 2025

Abstract

In the year 2025, the Nobel Prize in Physics was awarded to John Clarke, Michel H. Devoret, and John M. Martinis. They received the prize for "the discovery of macroscopic quantum mechanical tunneling and energy quantization in an electric circuit.[1][2]" In this research paper, we hope to discuss the mechanism behind it and how the copper pair works. Additionally, we will further reshape the copper pair theory with our innovative discussion of the copper pair mechanism behind. Moreover, we will try to introduce our new theory of assumption, the "Pretend magnetic Wall" for the macroscopic teleportation. Hope this theory can benefit the scientific community and the world.

Keywords: Pretend magnetic wall, Pretend magnetic wall-tunnelling, macro-scale Teleportation, large-scale of teleportation.

INTRODUCTION

The concept of the copper pair involves a quantum tunneling phenomenon that facilitates the coherent transfer of a large ensemble of electrons, often referred to as a macroscopic quantum state, across a potential barrier within a conductive medium. This phenomenon is classically termed the Cooper pair in condensed matter physics, particularly in the context of superconductivity. In this research paper, we examine the underlying microscopic mechanisms responsible for the formation and dynamics of Cooper pairs. Our analysis reveals that what is traditionally called a copper pair is composed of numerous micro-scale quasiparticles, such as electrons coupled via attractive interactions, which undergo a pairing process mediated by phonons collective excitations. This pairing enables the supercurrents observed in superconductors, driven by the exchange of virtual particles and governed by the BCS (Bardeen-Cooper-Schrieffer) theory. The weak attractive force responsible for pairing is often attributed to electron-phonon interactions, which induce an effective weak magnetic interaction that aligns electron spins to facilitate pairing. During current flow, the magnetic flux and vector potential influence the phase coherence of the pairs, allowing for resistance-free conduction. The strong coupling force that maintains the reliability of the paired state is associated with the collective energy gap, which binds the quasiparticles together quantum mechanically. Variations in the applied voltage alter the local electromagnetic field, thereby modifying the phase and amplitude of the wave-functions which involved this dynamic process is what we refer to as the 'integration effect,' representing the synchronized coupling of micro-scale particles resulting in emergent macro-scale superconducting behavior. In real quantum tunneling phenomena, electrons tend to minimize their energy expenditure during the tunneling process, resulting in a preference for pairing interactions that facilitate easier passage through the potential barrier. This pairing mechanism, while subtle and often overlooked in simplified explanations, can be understood as electrons forming transient correlated pairs, akin to Cooper pairs in superconductivity, which act synergistically to overcome the tunneling barrier.

Each pair of electrons, especially in conductive materials such as copper, behaves akin to a coordinated force that becomes synchronized at specific quantum temporal intervals. This synchronization is crucial, as it allows multiple electron pairs to tunnel simultaneously or in rapid succession, thereby enabling a macroscopic tunneling current. The phenomenon hinges on quantum coherence and phase matching conditions that permit large-scale electron tunneling, influencing the electrical conductivity and quantum transport properties of the material.

This research paper aim to reshape the copper pair theory with our innovative discussion of the copper pair mechanism behind. Moreover, we will try to introduce our new theory of assumption, the "Pretend magnetic Wall" for the macroscopic teleportation. The role of Cooper pairs of electrons in facilitating macro-scale transportation phenomena within condensed matter systems. We analyze the potential mechanisms by which these electron pairs can contribute to large-scale, macroscopic events, specifically through quantum tunneling processes. To enable such tunneling, we propose the formation of an effective potential barrier or pretend potential 'wall' generated by a tailored electromagnetic field configuration. This potential barrier acts as a quantum barrier, allowing for the coherent tunneling of Cooper pairs across regions that would make the macroscopic scale of teleportation become possible (such as teleportation of a soda can). By engineering this potential barrier, we aim to promote the formation and synchronization of Cooper pairs on a macroscopic scale, thereby enhancing collective transport properties. Our focus encompasses not only focus on the microscopic pairing mechanism, rooted in BCS (Bardeen-Cooper-Schrieffer) theory, but also the emergent phenomena associated with large-scale carrier teleportation mediated by these correlated electron pairs. This study hope to bridges the microscale quantum interactions with macroscale electrical and thermal transport processes, aiming to elucidate new pathways for manipulating superconducting and quantum coherence effects in condensed matter physics and most importantly the large scale of the teleportation.

Suggestion:**Pretend magnetic wall**

If we construct a magnetic barrier to act as a potential energy barrier that selectively allows the tunneling of Cooper pairs (paired electrons), it could theoretically enable large-scale quantum teleportation phenomena. By creating a magnetic field configuration that forms a potential well, we can use quantum tunneling effects of Cooper pairs across this barrier. Electron pairing here involves the formation of Cooper pairs through phonon-mediated attractive interactions, resulting in a condensate with superconducting properties. The suggest magnetic field will affects the superconducting order parameter, enabling controlled tunneling of these paired electrons through the barrier. This significantly reduces the energy needed for their transit thanks to quantum coherence and tunneling probabilities described by Josephson junction theory. This process effectively allows for a macroscopic quantum state transfer, making large-scale quantum teleportation possible through the coherent tunneling of a condensate of Cooper pairs.

The Gate Behind (Further interpretation of the Mechanism of the Copper Pair)

When you imagine the wall as a gate, when the electron wants to pass through, according to the least action principle, it usually wants to use less energy to do so. So, what will the electron do? When the electron wants to pass through the gate. It will pair up to use less energy to pass through the gate. It is easy to understand; this process is called tunneling. So, if we want to tunnel on a large scale, we need to build a "pretend wall" that makes electrons pair up and group together, allowing them to pass through. In other words, if we want large-scale teleportation to be possible, we need to build this "pretend wall." This "pretend wall" is an electromagnetic field that allows things to be transported.

When conceptualizing the potential barrier as a quantum gate, the energy barrier that an electron must overcome to pass through this barrier in the $>$ -gate pair type will tend to be minimized by applying the least action principle, thus effectively reducing energy consumption. This is similar to when you go to catch a train; at the station, there's usually a plastic gate, and imagine there's a gate you need to pass through to enter. When passengers want to minimize their fare, they tend to cluster briefly, so when the gate opens, the first person slips through while the second shifts to follow the first, very quickly during the short period the gate is open. These paired passengers are called a " $>$ -gate pair type." These $>$ -gate pairs enable large-scale teleportation to occur, especially when a pretend magnet wall acts as a gateway over a distance.

So, our description of these copper pairs in quantum mechanics, this phenomenon is known as quantum tunneling, as our new description, where an electron exhibits a non-zero probability of passing through a potential barrier even when its energy is less than the height of that barrier. These may happen when there is a possible potential gateway that allows the pair-up processing, enabling large-scale teleportation. This occurs due to the wave-like nature of particles described by the Schrödinger equation, where the electron's wavefunction penetrates the classically forbidden region.

To facilitate quantum tunneling at macroscopic scales, one hypothetical approach involves engineering a "potential gate synthetic barrier" a controlled electromagnetic field configuration that induces Cooper pairing among electrons. This pairing results in the formation of a correlated electron state, characteristic of a superconducting condensate. In essence, creating such a "pseudo wall" a pretend wall tailored electromagnetic environment could enable the synchronized movement of electron pairs, enhancing their collective tunneling probability. Analogous to quantum Josephson junctions in superconductivity, this setup would involve a carefully designed potential landscape that supports phase coherence across the barrier. Achieving macroscopic quantum tunneling or 'teleportation'-like transfer of electrons would then require the establishment of this engineered electromagnetic potential, effectively serving as a 'quantum conduit' that facilitates the coherent passage of electron pairs across the synthetic barrier.

If we build a magnetic wall that acts as a barrier and allow the large scale of the copper pair to pass through, then the large-scale teleportation will become possible. When we enable the group of copper pairs to pass, the large-scale teleportation can happen. We can create a potential field barrier and let electrons pair up; this is a natural behavior of electrons since they tend to use less energy to travel through the wall. This reduced energy requirement causes many electrons to pair up. So, in this 'potential barrier' process, we can allow many pairs of electrons to pair up and integrate, enabling them to pass through and, ultimately, integrate copper pairs that finally make large-scale teleportation possible.

Conclusion

This research paper attempts to discuss and reshape the copper pair. To further invent the new concept of the "pretend wall tunneling," our innovative idea shows there is a possibility that when we create a potential wall, the electron will pair up and pass through alongside the shortest distance, which allows for large-scale teleportation to happen. Hope this research paper can provide new insights into the scientific and benefit humanity.

REFERENCES

1. John M. Martinis, Michel H. Devoret, John Clarke, (1985) Quantum Behavior of a Macroscopic Variable: The Phase Difference across a Josephson Junction" Phys. Rev. Lett. 55, 1543–1546.
2. John M. Martinis, Michel H. Devoret, John Clarke, (1987). Experimental tests for the quantum behavior of a macroscopic degree of freedom: The phase difference across a Josephson junction. Phys. Rev. B 35, 4682.