

# Re-Exploration of Superconductivity

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Abstract: Re-explanation the causes and mechanism of Superconductivity in a new perspective and according to a new atomic and nuclear theory.

## **Main Viewpoints and Conclusions:**

Superconductivity is a phenomenon of exactly zero electrical resistance and expulsion of magnetic fields occurring in certain materials when cooled below a characteristic critical temperature. [1]

The cause and mechanism of Superconductivity is: in the characteristic critical temperature of a kind of metallic conductor, all atoms of the material being in Bose-Einstein condensation (BEC). So, we may tell it in a simple and popular manner that Superconductivity is the result of a super cold.

In the case, the electrical-charge outside the nucleus will into the same energy state of their ground and in a same density, and cohesion with its nucleus. The essence of superconductivity is, the nucleus of the metallic conductor involved in conducting.

In detail, because of a nucleus is composed of protons and  $\pi$ -mesons, or other words, it is a  $\pi$ -mesons body that some protons distributing in its internal. And Superconductivity is the  $\pi$ -mesons body involved in conducting. [2]

The structure and binding mode of the  $\pi$ -mesons body and the electric-charge body there may be one is the " $\pi$ - $\pi$ " mode; another is in the " $\pi$ -charge- $\pi$ ". [3]

In the " $\pi$ - $\pi$ " mode, that is the  $\pi$ -mesons bodies are sequentially polymerized in the form of a stick and to conduct current, same time, the charge bodies are polymerized together in the form of sleeve and to conduct current, and the  $\pi$ -mesons bodies in the sleeve formed of the charge bodies; or, every charge body full access to its nucleus' within, no longer alone in combination; The mode of " $\pi$ -charge- $\pi$ ", that is the  $\pi$ -mesons body (or charge body) and charge body (or  $\pi$ -mesons body) are sequentially polymerized and to conduct current.

The property which the expulsion of magnetic fields is more important and difficult requires in-depth study and discussion.

[1] Superconductivity <http://en.wikipedia.org/wiki/Superconductivity>

[2]  $\pi$ -Meson and the Structure of a Nucleus <http://vixra.org/abs/1405.0228>

[3] A New Model of Atomic Structure <http://vixra.org/abs/1401.0147>