

# 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 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 popular manner is that Superconductivity is the result of the cold.

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

In detail, because 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 also is very 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>