The Defects and New Vision of Physical Magnetic Theory

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Modern magnetic elements theory is seriously flawed, many physical phenomena cannot be explained.

This paper uses experiments to obtain opposite results to modern magnetic theory.

The microstructure and the corresponding theory of metal magnetization are presented.

All the disciplines of physics have undergone tremendous changes and witnessed rapid development, butMagnetic elements has not made any progress, just because the basic theory ofMagnetic elements is still wrong. This paper tries to establish a new theoretical system ofMagnetic elements to provide the theoretical basis and guidance for the development of new magnetic materials and their application, namely, the three formulas of metal magnetization:

Magnetization transition process formula

Magnetization maximum value formula

Magnetic flux distribution formula

Modern magnetic theory holds that: material magnetization magnetic field is composed of magnetic dipoles or molecular fields, atomic fields, which cannot explain many physical phenomena, such as:

* No magnetic dipole has been found yet.

In this paper, we believe that there is no magnetic dipole in matter, and the magnetic unit of matter is the charged particles with circular motion."Magnetic dipole" is only a physical effect of the charged particle. The magnetic unit of matter does not have a certain geometric size or magnetic size, but depends on the quantity of the charged particle and its moving state.

* Modern magnetic theory cannot explain the heterogeneous distribution of magnetic flux in ferromagnets.

Ferromagnetic matter is magnetized under the action of a strong external magnetic field, or in

the remaining magnetic state, as long as the magnet is magnetic, the distribution of the magnetic flux in the ferromagnet is uneven, along the radial direction, the farther away from the axis, near the edge, the greater the magnetic flux density.

Molecules and atoms are the basic particles that constitute the composition of the matter. From a macro point of view, since the matter is homogeneous therefore, the distribution of the molecules in the matter must be uniform, that is, the magnetic field composed of the uniform distribution of molecules and atoms can not form the uneven magnetized magnetic field in the ferromagnetic material. In that is to words, the magnetized magnetic field of ferromagnetic matter is not composed of molecular or atomic fields.

Most of the magnetic flux formed by the molecular fields and atomic sites forms a closed magnetic loop in the matter, which has very little impact on the macroscopic magnetic field. Therefore, the molecular fields and atomic fields can only constitute a weak magnetic matter.

* The magnetization curve of strongly magnetic matter can not be explained.

Under the action of the external magnetic field, the magnetic pole orientation of the magnetic element in the magnet will tend to be consistent. According to the theory of the existing magnetic field, the magnetization of the magnet will increase with the increase of the external magnetic field, and the derivative of the magnetization curve can only be greater than 0 and tend to 0, so it is impossible to be negative. However, the experimental magnetization curve shows that the magnetization of the ferromagnet initially increases with the increasing strength of the external magnetic field, and there is a maximum magnetization, and then after increasing the external magnetic field intensity, the magnetization of the magnet decreases, and the derivative of the curve is negative, which is inconsistent with the existing theory.

* Cannot explain the state of the tiny needle-like ferromagnet in the external magnetic field.

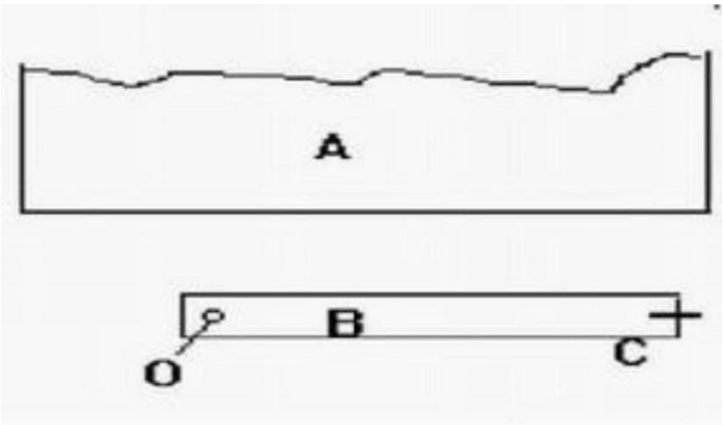
With existing theories, all needle-like ferromagnets should be attached to the magnet surface. But in reality, the axis of a tiny needle-like ferromagnet must go along the external magnetic field. Regardless of how the needle ferromagnet is set in advance, after the external force is eliminated, it stands upright on the surface of the magnet, outside the magnet, orderly arranged along the magnetic line.

* No explanation for the "anisotropy" of the metal magnetization.

* We cannot explain the formation of "electron clouds" on the surface of magnets during large-size magnetization.

* We cannot explain the exclusion phenomenon of the ferromagnet, that is, under certain conditions, the ferromagnet can be rejected by any magnetic magnet.

The experiment is shown in Figure



among:

A is a magnetic pole of a permanent magnet or electromagnet. In this experiment, it is a smooth end of a section of round iron about 20cm in diameter. The round iron is made into an electromagnet. The A-end magnetic pole can change with the direction of the excitation current.

O is the shaft. In this experiment, a power meter shaft support with all the magnetic material is removed, the shaft is changed to copper material, and the swimming wire pointer structure can be used to measure the torque.

B is a rod of a non-magnetic material that can rotate around the axis O. It is a hard foam plastic in this experiment.

C is a material without residue. In this experiment, a pin of the round head is removed, and the length of C is much larger than its diameter. C is at the edge of A and is parallel to A.

The pin is a ferromagnetic material, a strong magnetic material, strong magnetic substances are paramagnetic substances, that is, according to the modern magnetic theory, the pin in this

experiment must be attracted by the electromagnet in any case. However, under the conditions of this experiment, no matter how the polarity of the electromagnet in the position in the figure changes, the pin is rejected by the electromagnet.

This physical phenomenon is directly contradictory to the definition of "ferromagnetic matter", and is directly contradictory to the modern magnetic theory.

The more explicit statement of the results of the experiment is:

Anywhere in this experimental condition the needle moves in the direction of the angle less than 90 degrees between the magnetic line at the pin and the axis of the pin.

This experiment verifies the correctness of the theory of this article from one side.

Definition of this article:

1. Magnetic element: charged particles moving at constant velocity under the action of constant external magnetic field is called magnetic element. [Except for special statements, this article takes electron for example]

2. Magnetic plane: The plane where the magnetic elements lies is called the magnetic plane.

3. Magnetic center: the circular movement of the center is called magnetic center.

4. Magnetic axis: multiple magnetic center connection is called magnetic axis.

5. Magnetic element string: a string of magnetic element at equal intervals, in the same phase, with the same radius of motion, and its magnetic axis parallel to the external magnetic field is called a magnetic element string.

6. Magnetic element tube: The scanned cylindrical surface of connecting line of all magnetic element of a magnetic element string with doing circular motion is called magnetic element tube.

7. Magnetic tube middle cross section: The magnetic tube cross section with Isodistant from adjacent magnetic element planes is called magnetic tube middle cross section.

8. Middle cross section magnetic flux: The sum of the produced magnetic flux Through a middle cross section of oneself by all magnetic element of a magnetic element string is called middle cross section magnetic flux.

9. Effective magnetic flux of the magnetic string: The part of the magnetic flux produced by the magnetic string contributing to the macroscopic physical quantity is called the effective magnetic flux of the magnetic string.

Under the action of the external magnetic field, the process of forming the magnetic element string in the ferromagnetic material is the magnetization process of the material.

The macroscopic magnetic flux of a magnet is composed of the effective magnetic flux of the magnetic element strings within the magnet.

This paper believes that the magnetized magnetic field of a ferromagnetic matter can only be composed of free charged particles: charged particles with Brownian motion inside the metal become magnetic elements under the action of the external magnetic field, and magnetic elements interacts to form a magnetic element string and produce effective magnetic flux. To form a strong magnetized magnetic field, it requires not only to have more free electrons, but also to have the microstructure of the magnetic element string, and the material with this condition is the ferromagnetic material.

Because the internal microstructure affects the formation of the magnetic strings differently in different directions, it causes the "anisotropy" of the metal magnetization.

Under the ideal conditions: an infinite-long, uniform cylindrical ferromagnetic object is in a uniform magnetic field, and its axis is parallel to the external magnetic field direction, then:

1. Magnets form magnetic strings along the direction of the magnet axis.

2. Magnetic strings are distributed layered based on circumferences with centers by the magnet axis and evenly distributed on the same radius circumference.

3. The spacing between the adjacent magnetic element in all of the magnetic element string is the same

函数表达式积分

积分表达式

$$\int_0^{\frac{\pi}{2}}\int_0^{2R\,\mathrm{Cos}[\alpha]} k\sum_{i=1}^{\infty}\left(\frac{1}{\left(1+\left(\frac{h}{2\rho}\right)^2 i^2\right)^{\frac{3}{2}}}-\frac{1}{\left(1+\left(\frac{h}{\rho}\right)^2 i^2\right)^{\frac{3}{2}}}\right)\frac{\mathrm{Cos}[\alpha]}{\rho^2}\,d\rho\,d\alpha$$

The expression of the effective magnetic flux function of each magnetic element string is such as Figure, where K is constant, h is the distance between adjacent magnetic element in the magnetic element tube; R is the magnetic elements element tube radius.

The formula of the magnetization transition process is highly consistent with the magnetization

experimental curve in Soviet physics textbooks.

The same conclusion can be obtained by simple qualitative analysis: since the effective magnetic flux increases with the increase of the external magnetic field; because R decreases with the external magnetic field, The leakage of magnetic tube increases accordingly, when it becomes the main factor, the effective magnetic flux decreases with the increase of the external magnetic field.

The force of each magnetic elements in the magnetized magnet is calculated.

Let: the interlayer distance between the adjacent magnet string layers is d; the distance between the magnet string axis and the magnet axis is D, and d decreases as D increases. Obviously, the magnetic elements topic potential energy increases with decreasing d.

The formula of the paper is consistent with the actual flux distribution of ferromagnetic matter.

The same conclusion can be obtained through simple qualitative analysis: p and q are the axis of two magnetic elements tube in a section of the magnetized magnet, and Dp> Dq, make the tangent of the circle, it Pass p and q, qualitative comparative analysis of the electric field forces subjected to the magnetic elements on p, q, the above conclusion can be obtained.

alter the relative position of Needle magnetized magnet and the external magnetic field magnetic line，when the axis needle magnetized magnet is parallel to the external magnetic field with the minimum number of layers, at this time, the magnet has the smallest bit potential energy. Therefore, the needle-like ferromagnetic material under the external magnetic field, its axis is always along the external magnetic field direction.

The essence of the experiment is that ferromagnetic material is magnetized under an external magnetic field, with magnetic energy, the magnetic energy has a bit-potential energy, the magnetic energy is not only related to the external magnetic field strength, also with the macroscopic shape of the ferromagnet. For example, when the ferromagnetic material in this experiment was a spheroid, attracted by the electromagnet, whether from anywhere in Fig. When the ferromagnetic material is a spiculate, and its axis is in the same direction as the external magnetic field, its potential energy is the minimum; When its axis is perpendicular to the external magnetic field direction, its position potential energy is maximum. The direction where the Angle of the needle body axis and its magnetic line is less than 90 degrees is the direction where its position potential energy decreases, therefore, the spicule necessarily moves in that

direction.

Ratiocination:

1. Increasing the radial size of the magnet, The distance between the outermost magnetic elements layers decreases accordingly, The repulsive force increased, when the force exceeds the object surface force, the layer of magnetic elements will "escape" from the object. This is why a large enough magnet forms an "electron cloud" on the surface of the magnet when it is magnetized.

2. In order to obtain a uniform magnetic flux in the magnet axis cross section, it can be layered along the magnet axis cross section. The finer the layer, the more uniform the magnetic flux distribution. For example, the magnetic material and the insulation material can be sprayed apart.

With layered structure, even large magnets will not appear electronic cloud.

3. The internal material of the earth is ionized due to high temperature, and the magma forms tree branch due to the geological structure. Extending to the surface of the earth is the volcano. Electrons and ions in the lava form a magnetic string under the action of the earth's rotating magnetic field. Due to the relative position between the "tree branch structure" and the earth's magnetic field, the magnetic string exerts a force on the earth, making the earth's "geography axis" deviate from the earth's magnetic axis. Because the geological structure of the earth is constantly changing, so the earth axis is also constantly changing.

4. Because the Earth is large enough, the outer electrons escape from the Earth and form an "ionosphere" on the Earth's surface.

5. In the same way, the sun has an ionosphere on its surface.

If the star with heat source is called "hot star", and the star without heat source is called "cold star", then the hot stars have "ionosphere", while the "cold stars" do not. Or, any star with an "ionosphere" is a "hot star", such as the Earth; and any one without an ionosphere is a "cold star", such as the moon.

6. The pit landform of "cold star" cannot be "volcanic vent ", but can only be formed by star impact.