# Perpendicular action experiment with a long rectangular coil

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## 1. Interaction between perpendicular currents

For the last 2 years, I have been publishing theoretical and experimental studies showing inconsistencies of the Lorentz force law due to violation of Newton's third law. I proposed a corrected magnetic force law to express magnetic force behavior that the Lorentz force cannot explain (see **Unknown properties of magnetic force and Lorentz force law (Word, PDF)**).

Since the corrected magnetic force law gives the same value for the total magnetic force between 2 coils as the Lorentz force law but in addition respects Newton's third law for current elements, I thought that it described correctly magnetic force and tried to prove this by experiment. I planned 2 experiments to show firstly that the force between perpendicular currents was zero and secondly the magnetic force tangential to current is not zero.

But against my expectation, the first experiment was a blatant **Fail of the perpendicular action experiment,** blogspot academia. The experiment showed that the magnetic force between perpendicular current elements, the perpendicular action, existed.

Obviously something is missing in my law. I have been searching for this something during the whole last year and finally figured out how magnetic force arises between perpendicular currents while respecting Newton's third law. So I have redone this experiment and taken it in video. See http://youtu.be/1XMS2sLvYIM

Figure 1 shows the long rectangular coil that creates a magnetic field. In its center is the test coil for showing the magnetic force. The length and width of the rectangular coil are 50 cm and 6 cm. The short sides of this coil are far from the center with respect to the long sides so that their effect on the test coil is negligible and the force turning the test coil comes only from the long sides. When the test coil is perpendicular to the long sides, its rotation shows the force between perpendicular currents. My corrected magnetic force law predicts that this force is zero and the test coil should stay immobile. But it rotates.

**Figure 1**

## 2. Previous experiments

This experiment shows that the force between perpendicular currents is missing in my law and it does not describe complete magnetic force. As zero perpendicular action is invalidated, the experiment **Lorentz perpendicular action experiment and Lorentz force law** blogspot academia becomes irrelevant. The **One way magnetic force (pdf**, **word)** experiment shows a weird behavior of magnetic force without giving any valuable information.

This is a serious setback from my triumphant claim that my corrected law is going to replace the Lorentz force law. In fact, my corrected law is right about the force between parallel currents but wrong about the force between perpendicular currents. Nevertheless, the existence of magnetic force tangential to current has been confirmed by experiments.

**Anti-Lorentzian Motor (pdf**, **word)** shows a rectangular coil rotating parallel to the current.
**Circular motor driven by tangential magnetic force (pdf**, **word)** shows a circular coil rotating parallel to the current in a quadripole magnetic field making certain that the force is tangential to the current all over the coil.
**Tangential force motor with regular magnets (pdf**, **word with the video integrated)** shows a rotating circular coil driven by regular magnets proving that tangential force exists in all magnetic fields.

Experiments about perpendicular action have also given interesting result. **Macroscopic Aharonov–Bohm effect experiment and theory (word, PDF)** has shown that, around the middle of a long bar magnet where the magnetic field predicted by Ampere's law is zero, current really feels a force. This gives a rational explanation to Aharonov–Bohm effect.

The existence of tangential magnetic force and the rational explanation to Aharonov–Bohm effect are high-valued discoveries that contradict the Lorentz force law. These results are obtained with a law that is only half right. From an optimistic standpoint, the complete law will only be better.

By the way, in an attempt to explain the **Fail of the perpendicular action experiment,** I proposed the magnetization of the wires as an explanation to the perpendicular action (see **Magnetized wire effect and perpendicular action experiment** blogspot academia). Now, this effect seems to be too weak to be responsible. Still, it is worth studying in the future.

## 3. Comments

So, I declare that my corrected magnetic force law is not correct and I will derive mathematically the complete law in the future. This is a work that needs much time and I wish to start it right now. But I can't. Given the reticence of the physical community today, it would be rejected right away. When geocentrism was still the standard, it was simply impossible to admit the Sun as the center of the Universe. Universe has only one center, it is either the Earth or the Sun, and it cannot be both. For heliocentrism to be established, geocentrism must be ruled out first. Before the establishment of the new electromagnetic theory the old one must be recognized as obsolete.

This is why my primary work now is to demonstrate the incorrectness of the classical electromagnetic theory so that the physical community admits it to be wrong. This is not an easy task. I have been writing to someone about my experiments on tangential force. I think he sincerely wants to be open-minded in examining my experiments. But he is so into the Lorentz force law that

he just cannot imagine tangential force to exist. Open-mindedness for him turned out to be accepting my circular coil rotates tangentially and picking up a parasite Lorentz force to explain the phenomenon. He argued that my wires are not smoothly circular and the small meanders of the wire will create sufficient Lorentz force to turn the coil tangentially.

Our correspondence turned into dialogue of the deaf. You cannot remove easily such sincere stubbornness, especially from the mind of thousands of highly qualified physicists. The only way to convince them is to destroy the theory itself.

Old building must be demolished before a new one could be constructed at its place. A king enthrones only after the former is dead. So, destruction is a necessary preliminary to construction. Let us go on a happy destroying spree. Take your hammers and spades, break the cornerstones of the electromagnetic building. Or rather take your magnets and coils, prove the incorrectness of the Lorentz force law, Ampere's law and Faraday's law with your experiments.

Considering the experimental and theoretical studies I have provided, classical electromagnetism is in deep trouble. After a time necessary for the message to reach most physicists, they will be willing to discard the old theory and consider the new one that I will present. The problem is: I still have not the complete law! Will I be able to construct it?

The fact is I'm broadcasting live the construction of a great theory with dramatic happy developments and sad setback. The end is not written. Either I will succeed in deriving a beautifully law and correct the electromagnetic theory, or we will be in an embarrassing situation where the old theory is already down but the new theory is not ready yet. The suspense is big and exciting.