

## **Explanatory summary of my work on Electromagnetism**

[PDF word](#)

Magnetism and dark matter [PDF](#), [Word](#)

Explanation of the origin of dark matter using magnetism and relativity

## **Macroscopic Aharonov–Bohm effect**

[Consequences of macroscopic Aharonov-Bohm effect \(PDF, word\)](#)

[Macroscopic Aharonov–Bohm effect experiment and theory \(word\), \(PDF\)](#)

[Aharonov–Bohm effect in CRT experiment PDF, Word with video](#)

Image in a CRT TV set deflected by a long solenoid.

[A 1.95 m long solenoid exerting Aharonov–Bohm force on a coil](#)

This experiment shows the magnetic force on a coil exerted by the magnetic field of a long solenoid that should be zero.

[Non-Lorentzian Magnetic force and Aharonov-Bohm effect in CRT \(PDF\), \(Word\)](#)

## **Tangential magnetic force**

[Anti-Lorentzian Motor \(pdf\), \(word\)](#)

[Circular motor driven by tangential magnetic force \(pdf\), \(word\)](#)

[Theory about parallel action experiment](#)

<http://pengkuanem.blogspot.com/2013/03/blog-post.html>

[Disc magnet parallel action experiment pdf Word with video included](#)

Square coil showing parallel action due to the magnetic field of a round magnet

[Earth's magnetic field and parallel action pdf word with video](#)

Square coil showing parallel action due to terrestrial magnetic field

Lorentz parallel action experiment [blogspot](#)

<http://youtu.be/2u5NadxomOM>

Current and parallel action (PDF, word)

## **About Lorentz force law**

Analyze of the Lorentz forces internal to an equilateral triangle coil, [blogspot](#)

Calculation of the Lorentz' Torque and the Ampere's torque, [blogspot academia](#)

Comparison of the 2 magnetic force laws (near a corner, force tends to infinity, [blogspot academia](#)

[Computation of the self force of a coil](#)

<http://pengkuanem.blogspot.com/2013/05/computation-of-self-force-of-coil.html>

Correct differential magnetic force law [blogspot academia](#)

[Corrected law and Perpendicular action experiment](#)

<http://pengkuanem.blogspot.com/2013/03/corrected-law-and-perpendicular-action.html>

Correction to the Biot-Savart law (PDF, word)

Curve shape of the magnetic torques, [blogspot academia](#)

Fail of the perpendicular action experiment, [blogspot academia](#)

Lorentz force on open circuit, [blogspot academia](#)

Lorentz forces internal to a polygon coil, analyze and computation, [blogspot](#)

Lorentz perpendicular action experiment and Lorentz force law

<http://pengkuanem.blogspot.com/2013/02/lorentz-perpendicular-action-experiment.html>

Lorentz perpendicular action experiment, [blogspot academia](#)

Lorentz torque experiment, [blogspot academia](#)

Magnetic field of a non-circular toroidal magnet (pdf), (word)

Magnetized wire effect and perpendicular action experiment

<http://pengkuanem.blogspot.com/2013/04/magnetized-wire-effect-and.html>

Mathematical cause of the existence of the remaining resultant internal Lorentz force (Force on corner is parabolic), [blogspot academia](#)

Not a “one-way” magnetic force (pdf, word)

Numerical computation of the Lorentz force internal to an asymmetric coil [blogspot academia](#)

One way magnetic force (pdf, word)

Paradoxes and solutions about Lorentz force law (complete study), [blogspot academia](#)

Proof of the remaining resultant Lorentz force internal to a triangular coil (integration of resultant force, [blogspot academia](#))

Success of the modified Lorentz perpendicular action experiment, [blogspot academia](#)

Synthesis of the inconsistency of the Lorentz force law, [blogspot academia](#)

Unhappiness of Newton with Lorentz and triangular coil experiment [blogspot academia](#)

Unknown properties of magnetic force and Lorentz force law (PDF, Word),

Why magnetic field must be a tensor? (pdf, word)

## About Lorentz EMF

- Theory

B-Cutting Solution, [blogspot academia](#)

Lorentz' EMF paradox, [blogspot academia](#)

B-cutting paradox, [blogspot academia](#)

- Experiment designs

[Non Loop EMF Experiment,](#)

<http://pengkuanem.blogspot.com/2012/06/non-loop-emf-experiment.html>

[Lorentz' EMF Experiment, blogspot academia](#)

## About Faraday's Law

- Theory

[Induced conductor net problem PDF, Word](#)

Faraday's law does not predict what the voltage in the wires of a induced web is.

[Coil and resistor induction paradox PDF, Word](#)

Paradox on Faraday's law derived from the profile of potential in an induced coil closed by a resistance and the solution of this paradox

[Non-loop induced voltage problem PDF, Word](#)

Paradox on Faraday's law derived from a 4-parts induced coil.

[Crux of the controversy about Faraday's law, blogspot academia](#)

[Can EMF distribution be known? blogspot academia](#)

[Faraday's Law Paradox, blogspot academia](#)

- Experiment designs

[Is the tangential EMF due to a tilt of the coil? PDF, Word with video](#)

Experiment showing that the voltage induced with zero magnetic flux variation is not due to a tilt of the coil.

[Tangential EMF experiment PDF, Word with video](#)

Experiment showing voltage induced with no magnetic flux variation.

[Faraday's torque experiment, blogspot academia](#)

[Partial EMF measurement, blogspot academia](#)

## About wave

- Theory

[Energy density of electromagnetic wave](#)

EM wave equation gives a solution whose angular density of energy goes to infinity at  $r=0$ .

[Electromagnetic wave energy flux, blogspot academia](#)

EM wave equation gives a solution whose energy density is variable with distance and goes to infinity at  $r=0$ .

[Can EM wave go forward back? blogspot academia](#)

EM wave equation gives a solution whose velocity is variable with distance and goes to infinity at some points and becomes negative near the source.

[Electromagnetic Wave Paradox, blogspot academia](#)

EM wave equation gives a solution whose velocity is variable with distance from the source.

[Why EM wave equation does not conform to relativity? \(Short version of Electromagnetic Wave Paradox\), blogspot academia](#)

- Experiment designs

[A wave that is out of phase with itself, blogspot academia](#)

[Deformation of EM wave signals, blogspot academia](#)

## About displacement current

- Theory

[Phantom Lorentz force Paradox](#), [blogspot academia](#)  
[Displacement Current Paradox](#), [blogspot academia](#)

- Experiment designs

[Displacement magnetism experiment design](#),  
<http://pengkuanem.blogspot.com/2012/07/displacement-magnetism-experiment-design.html>