

Magnetic Monopole Charges and Gravitational Field Hypothesis  
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This paper is presented to place into the public domain a number of unique hypothesis points for consideration and development on magnetic monopoles and gravitational research. It is the intention by extending this hypothesis to the public at its outset it can reach the greatest number of researchers and interested persons possible, thereby more rapidly permitting growth of both fields.

Hypothesis points:

1.

Electric positive and negative charges exist naturally with known phenomenon.

- Positive field lines point out.
- Negative field lines point in.
- Charges in motion generate magnetic fields.
- Magnetic fields changing strength per unit time generate electric fields.
- The force mediating boson is the Photon.

2.

Though Magnetic Monopoles are forbidden by Electric Field equations some theory suggests they either do exist independently or can be created artificially.

- Paul Dirac suggested the existence of even one magnetic monopole would produce the charge quantization of the electric field.
- We can write equations for the existence of the Magneto-electric field and its charges which parallel those of the Electromagnetic.
- Effects of the presence of a magnetic charge have been predicted and include a sustained current in a wire.
- Experiments being conducted have produced quasi-particles and isolated sections of magnetic fields at quantum scales that mimic predicted properties of magnetic monopoles.

3.

Do Magnetic Monopoles exchange Photons or another boson?

- Although electric charges exchange photons it may be a stretch to automatically assume magnetic charges shall also.
- Electric and magnetic field are related.
- Yet we have only tested their effects with one set of known separate positive and negative charges; those of the electric field.
  - The Photon is the boson, force carrying particle, of the electric field.
  - Electric charges in motion generate magnetic fields.

- Though it is clear the presence of a magnetic monopole will have electric effects.
  - A single magnetic charge can be positive or negative.
  - Field lines will point only out or only in respectively.
  - A magnetic charge in motion will generate an electric field but that field will likely cycle unidirectionally through the source generating magnetic monopole just like magnetic fields do in a traditional magnet.
  - Though the concepts of the Electromagnetic and Magnetolectric fields are related they are not identical.
  - The presence of and motion of a magnetic charge will effect electric fields, electrically charged matter and photons will be exchanged as a result but this does not imply the Magnetolectric elements are themselves also exchanging photons.

4.

There may be another boson being exchanged besides the photon which has similar properties

- That boson may be the gravitation.
- It is already hypothesized, has similar properties to the photon and naturally emerges from some attempts at grand unified theories.
- If quantum scale sections of electric fields / electrically charged matter can be manipulated in the lab to create isolated sections which have properties identical to magnetic monopoles it seems likely this process could occur naturally within electrically charged baryonic matter.
- Can it be, at the quantum scale the various oscillations of protons, neutrons and electrons, or more precisely quarks are generating highly localized instances of positive and negative magnetic monopole charges as they move about?
- If true these charges would be highly localized, weak in intensity and of a transient, non-permanent nature.
- Though the magnetic charges are weak and collectively may in fact overall cancel each other out, any boson they are exchanging is suspected to have an infinite reach, travel at the speed of light and fall off in intensity with an inverse square. For purposes of hypothesis we shall argue it is not the photon but instead its own boson.
- Let us further hypothesize that the presence of magnetic monopoles maintain the aspect the unidirectional flow of their field lines, not in their separate positive and negative charges, but in the boson they exchange.
  - The Graviton possesses nearly identical properties to the photon and also has a unidirectional aspect to it.
  - Field lines on the graviton always point inward.

- With this addition to the hypothesis, although overall interaction of magnetic monopole charges may cancel each other out the overall exchange of magnetic monopole bosons, gravitons, will not. They would leave an overall net force.

5.

The overall effect of this hypothesis will be a weak gravitational field noticeable within large collections of baryonic matter with traditional electric charges.

- It may then be for this reason that the presence of both matter and energy via the equivalence principle should, as is certain in the case of planets and stars, produce gravitational fields.
- It may be that the mathematics representing this phenomenon will provide a description of the gravitational field effect already approximated extremely well if not exactly by Relativity.

6.

Further research

- How could this be used to intentionally generate gravitational fields of both positive and negative alignment?
- Is there a gravitational spectrum analogous to the electromagnetic spectrum of the photon?
- What are the properties of this spectrum?
- Are some energy levels repulsive rather than attractive naturally?