Understanding the Flux Resonator Lens – Version 1.3 © 2006 by S. Richard Bowman

Introduction

I've been asked to give my explanation of the images created by the "Flux Resonator" lens as shown on www.magnetostatics.com.

The Flux Resonator shows vibrant, golden glowing arcs and fields, quite different in style and position to "lines of force" shown by iron filings; in general, these arcs run at right-angles to lines of force. What are these glowing arcs? (come to that, what exactly are lines of force?)

To explain I will use a teaching model called "EFD". The model is a graphical method and already implied such images, so can suggest what the lens shows.

The Flux Resonator lens apparently draws zero or minimum potential magnetic regions as glowing lines. These are magnetic "lowest Potential Energy" scalar A events :(what does that mean?

That's where EFD comes in. To explain the lens you need to know how magnets work! EFD was devised as a pictorial way to teach magnetism (a part of physics called electrodynamics) to age 14+ school kids. Best of all, EFD diagrams need little or no math.

Here then is "EFD 101". Along the way EFD answers the question: "What is magnetism?".

The "Electrostatic Frame Drag" Model is a mix of old and new; an update to the "ether vortex" model used by James Clerk Maxwell, the guy who wrote the maths for the subject around 1860.

About the ether. It's an old idea, supposedly being an invisible, all-pervading cloud or sea filling space. The ether is to us "like water is to fish" – invisible, intangible, not really solid. Always there, with invisible properties like temperature and tides. ** *Note that the ether is a concept used to help understanding; it is not "thought to be real" - space sometimes just behaves like a sea* .

Maxwell wrote his math thinking about literal vortexes, real "mini tornadoes" in space. EFD is just a different way of presenting Maxwell's work.

Notes

1. This is not the full version of EFD - that needs a book :)

2. Like all models, EFD is a representation, not a reality. It is useful only for illustration.

3. In EFD, "spin" means "mechanically rotates".

4. *Be Warned: The ether is not the accepted ("Standard Model") way of thinking about physics; it is a historic approach now considered obsolete - indeed naïve.*

Here is EFD 101. We start with the electron (which acts like a tiny rod magnet) and look at:

a) the spin field about the electron,
b) the drag field about the electron, and
c) the forces / potentials present about the electron,
d) how attraction and repulsion work.

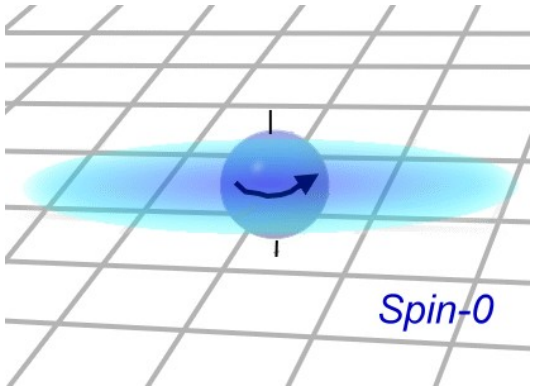
We apply these to a real magnet, then go on to explain what it is the Flux Resonator lens shows.

A) The spin field about the electron

Each electron is a region of negative charge (electricity) spinning on an axis, and may be thought of as a sphere, a disc or a double vortex. The electron has no known constituent parts, although it is suspected to have an inner void (perhaps even a tiny Black Hole). All electrons spin.

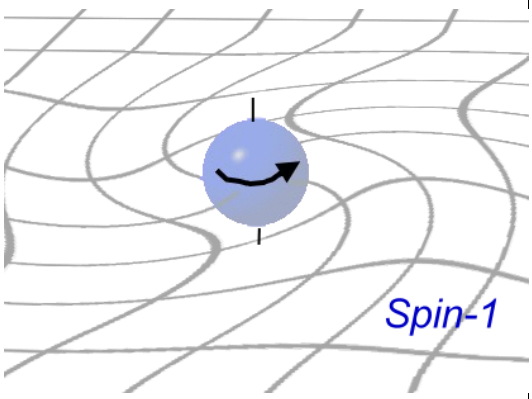
But what spins? Today's science says “the properties of space”. Some say “an ether” spins.

Here is a graphic of a spinning electron; I'll call this picture “Spin-0”. This is a traditional view.

Spin-0 A spinning electron on a neutral grid with the spin field (blue) about the electron. Outer edges move slowly; the central, darker regions move fast. The grey lines show a notional grid, just 1 of many flat planes. This one is through the equator of the electron. Ideally 3D cubes should be drawn (but that would make the diagram confusing)	

B) The drag field about the electron

We now use an ether view of what happens to space (M-Theory might call this a “dragged charge brane”), caused by the electron's spin. This is Spin-1, showing the way the electron drags space. The important thing here is that we are drop the idea of a spin field – and instead say that space (the properties of space) are dragged in the direction of rotation.

Spin-1 Showing an electron “twisting space”. Regions far from the electron are twisted less; regions close to the electron are twisted more. The twist spreads out “forever” getting weaker and weaker – eventually becoming lost in the background noise of other spins, distortions, wakes of moving particles, photons etc.	

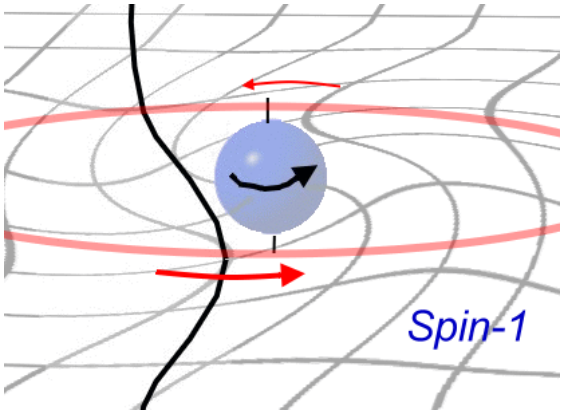
Electrons are usually bound to protons in some arrangement. The spin of each is exactly equal and normally arranged to cancel each other out. If somehow they do not cancel, you get ... magnets!

This distortion of space requires work (energy). This was loaded or torqued into space when the electron was “spun up” and is now “bound into space”. It is similar to a “hill” or an “offset”, giving rotated displacements from “where that part of space would have been, if the electron didn't spin”.

Spin-1-B

Showing the equatorial drag on space and the drag in a vertical direction.

At the equator space is most dragged, dropping away to zero above and below (see line in black)



Both above and below the electron space gains a sideways torque (shown in red in the next diagram) – and we begin to see a difference between "North" and "South". Cubes of vertical space show torque slanting different ways, coming to a peak of twist at the equator.

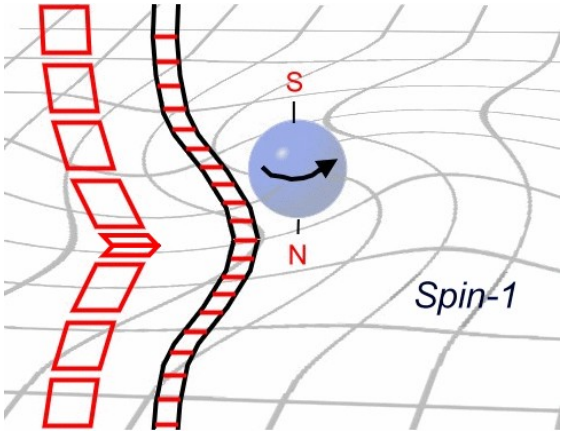
Spin-1-C

Notional cubes / squares showing the way space is dragged above and below the electron.

The distortions in red have peak sideways drag at the equator, all around the electron.

The near-edge position of a flat equatorial disk is shown. The distortion follows about the disc.

Inside the central double-red arrow, the N – S sense flips. North and South have space dragged "in opposite directions".



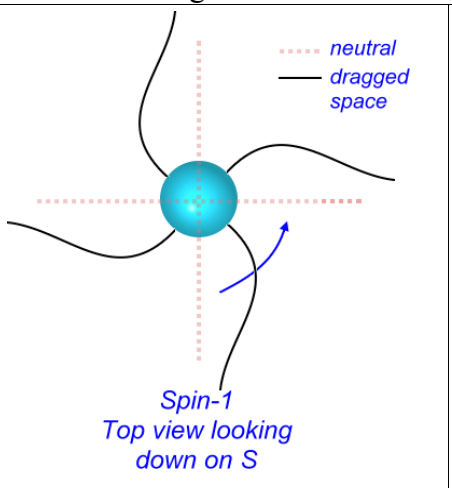
Note: In EFD spheres are shown rotating like Earth: turning anti-clockwise with a magnetic S at the top (our planet has an S at the geographic North, this is why compass "N" points that way).

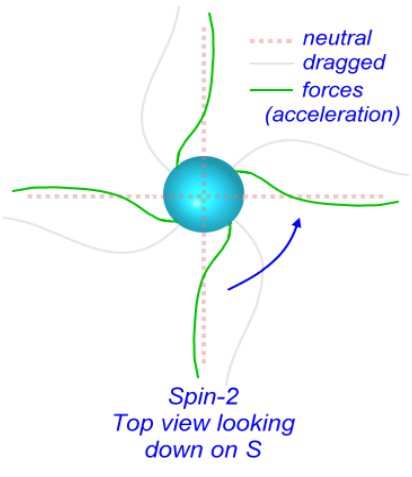
C) The forces present about the electron

The top-down views below show Spin-2, fields of potential acceleration. "Potential" means they "do nothing" - until something enters the field. This is very like a planet's gravity field.

Top-A

Looking down on Spin-1





Top-B

Drawing in acceleration (= slope of Spin-1 arms)

Top-A shows the Spin-1 view and Top-B the differential (the slope) of Spin-1 looking down on S. To simplify, only 4 “drag arms” are drawn. NB: dragged space fully surrounds the electron.

Top-B shows in green the potential accelerations; there is a positive region near the electron, a zero-crossing then a long negative region. Again, these “do nothing” unless something enters them.

Spin-1 and Spin-2 together represent regions of “Potential Energy” (PE) latent in space about the electron. Displacement (Spin-1) and potential acceleration (Spin-2) together represent an energy well or hill, plus directionality (the sign of acceleration).

The fact that the sign reverses (the green arms of Top-B go from positive to negative) means that the acceleration zones “push” in opposing directions. The zero-crossing point marks where “curves like S” become “curves like N”, going further out from the electron. The electron “sees” the outside world as a space spun like itself, a wall of zero, then a sea of other-ways-spin.

At the zero-crossing point acceleration is zero; this region has no forces. When iron filings are scattered about a magnet Spin-2 accelerations generate forces which pull filings to inner and outer zones – yet the zero region is often clear, an “empty part”. Anything in here is going to want to fall either side, in or out – it's difficult to stay put.

> http://son.nasa.gov/tass/content/electricity.htm (see the blue picture mid-page)
> http://demoroom.physics.ncsu.edu/orders/demos/128.html

Space at this zero crossing / zero slope zone (the peak of a Spin-1 arm) is not “cubic”, rather is slightly convex – cubes here are slightly pushed-in in the middle.

Apparently it is possible to place a thin sheet of mild steel in the zero slope zone, to block the outer negative slope Spin-2 field (see “Wesley Gary” on the Web; our zero slope zone is his “neutral line”). This is tricky – I have not formally replicated it, but informally have noticed it in passing.

** This is an important magnetic feature; it allows weak parts of fields to be gated **

Modern electrodynamics expresses all this in math; the Spin-1 arrangement is called the Scaler A field and the Spin-2 the B field. Many engineers have bemoaned the inability to extract force from the A field, where absolute field intensity is very high. But the B field holds the useful forces :)

Those into maths may note:

> Spin-0 = amount of movement and its differential:
> Spin-1 = velocity of movement and its differential:
> Spin-2 = acceleration of movement

Also, the shapes chosen for the arms in Spin-1 have not been explained. These shapes arise from a desire to limit differences in distortion between adjoining “ether cubes” to some low number. The result is a drawing style called “curvilinear”.

If we did not do that, and just used arbitrary straight lines, we imply that space can be nipped or sharply distorted – with no leakage of distortion into adjoining space. This does not happen; ether space always works to “even things out”. Pressure waves (photons) radiate out from differences, smoothing out the situation. This is a transitory effect.

These diagrams originate from analysis of spinning / dragged charge-branes, which essentially duplicate the vortex ideas of Maxwell c. 1857 in a modern manner.

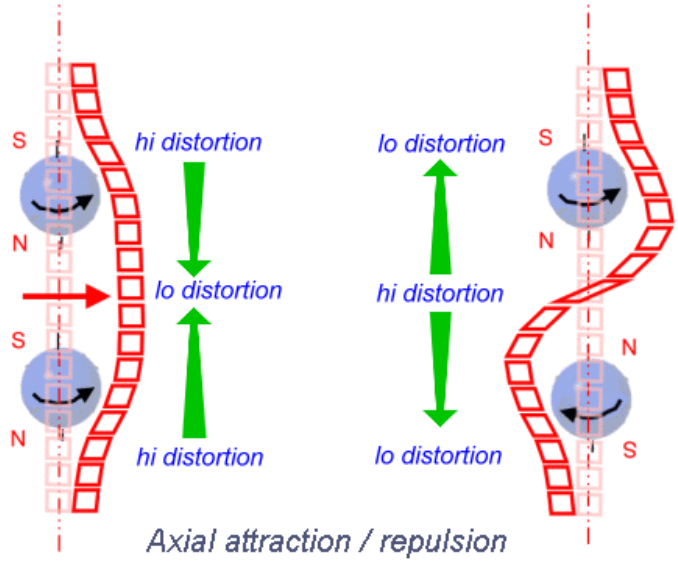
D) How Attraction and Repulsion work

Here we have the key point to understand magnets:

> In the EFD model, the lowest Potential Energy condition is zero cubical distortion.
>
> Distortions create "internally bound over-pressure", this produces a force-vector (acceleration) towards less-distorted (less pressurised) space. The direction towards the least-deformed cube is "down hill". The lowest Potential Energy direction is always preferred.

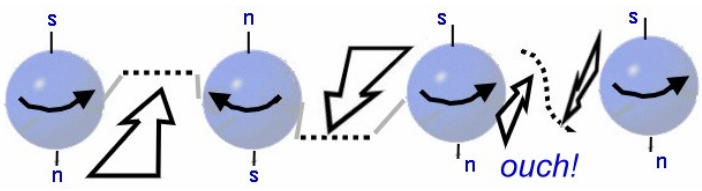
If we vertically stack co-spinning electrons, the region between the electrons "spins together", sharing the same twist. There is reduced drop-off back to neutral – hence less stress per cube of space and lower Potential Energy. As a result, PE pressure above the top electron and below the lower electron push the two together. Almost perfect cubic space (offset in the spin direction) will form between the magnets, holding them in place. This is attraction.

Flip the lower electron so it rotates against the top. When brought close the middle space now gets extra-twisted. "Go to lowest PE" will want the electrons to move away from each other. Pushing the two electrons back together takes work. This work is bound into space by distorting the ether even more; this forms a central over-pressure and will push back - called repulsion.

Attract-Repel-A (axial) Faint red cubes – "neutral" un-curved ether. Green - forces More distorted: higher PE bound in space; attempts to push other squares away (=repulsion) Left. Co-rotating (S-N S-N) electrons attract by forming zero PE central space Right. Contra-rotating (S-N N-S) electrons repel as high sheer torques (=max distortion) form in central space		

NB introducing other magnetic material instantly modifies the situation.

This analysis works for side to side electrons too; notice this time contra-rotating (S-N N-S) side-spinning electrons are attracted.

Attract-Repel-B (side to side) S-N to N-S: drags agree => attract N-S to S-N: drags agree => attract S-N to S-N: DISagree => repel		

In summary, drags of space which move in the same direction "attract" by forming low PE ("more

cubic") space. Drags which increase twist or distortion of cubic space repel.

It is thought that space is incredibly stiff; the distortions shown here are likely very exaggerated.

Lines of Force and Axial Threads

Each pole of an electron has a thread of ether space, reaching out to the nearest same-spinning pole. This may be another spinning body, or might go around the electron to attach at the other pole.

Traditionally these are called "Lines of Force". EFD sees these as chains of space rotated along their length, gaining a spiral twist similar to a thread of cotton.

EFD calls these "axial threads"; they are very mobile and hunt to find their lowest PE situation. They are extremely subject to attraction / repulsion. Nearly all vortex phenomena have such threads; the generic term for such threds being "torsion string".

Real Magnets

Real magnets contain vast numbers of "domains", each a crystal of metal with electrons co-spinning axially, SN-SN attached. Spinning axially, the fields will accumulate. A strong magnet has many domains all spinning space the same way i.e. all point in the same direction.

Domains tend to repel "sideways" and are not the usual way metals arrange themselves; normally most materials try to attain minimum PE, which gives no overall field. This sideways repulsion is seen when iron filings form "lines of force". Filings stick tip to tip as axial threads transit them (SN-SN same spin axial attraction) but avoid each other sideways, leaving small gaps.

In general, magnets can be approximated as a "big electron" but with many axial threads at each pole end. These do slightly complicate matters, making "loops" around each pole which effectively widen the central zero-slope regions.

In Summary

* magnets are regions of dragged / torqued / spun space, fading to zero "at infinity"

* magnetic forces are interactions in distorted space (cubes distorted by slants and twists)
* attraction / repulsion are: reducing or increasing Potential Energy bound in distorted space
* there are no forces in perfect-cubic regions (zero slope zone and equatorial disc)

* N is clockwise spun space, S is anti-clockwise (this is proven elsewhere)
* N and S cannot be separated, they are top / bottom views of a torqued region of space

* spin and torque "peak" at the equator into a disc of "rotationally displaced" cubic space
* spinning axial threads of twisting space attach at the axis-centre of S and N

So – What might the Flux Resonator lens show?

There are several possibilities - and the issue is complicated by "what is happening in the lens?" plus "what is it that the glowing lines show?"

Here is my own interpretation, which does need to be verified in a lab though...

* In the lens, fluid particles align tip-to-tip like iron filings (SN to SN) forming many thin lines.

* Light passing through these behave as if a diffraction grating is present, a grating of a shape created by the local magnetic field.

When looked at “square on” the glows correspond to regions of space with the lowest PE - space about a magnet which are most cubic in Spin-1.

Usually this means regions of least acceleration or “slope flip-over” / zero crossing zones. Included in this is “saddle-backed space” i.e. cubes which are near square or are slightly concave / convex, rather then diamond-rhomboid shaped.

These occur in three distinct areas:

1) at the equatorial region of the magnets spin field, as a disc about the waist / mid-section (a “tutu” about the equator, see the centre red “arrow flight” of Spin-1-C picture),

2) as a loop about the magnet, in the region where the sign of the acceleration flips (a loop formed by all the Top-B Spin-2 green zero-crossing points), and

3) at the poles of the magnet (less often seen)

Let's mark-up some lens photos and explain them.

Do realise: the type of light, the direction (angle) of the light and where the lens is - all make a difference. The images are seemingly formed in material suspended within the lens – we see a slice of space away from the magnet.

We see NOT the space about the magnet but the effects of the fields as they cross the body of the lens. Sometimes this has little difference, sometimes a lot.

<u>Image-A</u>

Glowing lines suggest regions with the following properties:

1: Lowest PE (the ellipse)

2: Space nipped between zones with differing “poleness slope” i.e. the equatorial glow is Spin-1-C's red arrow region, forming a disc (see also Image-B below)

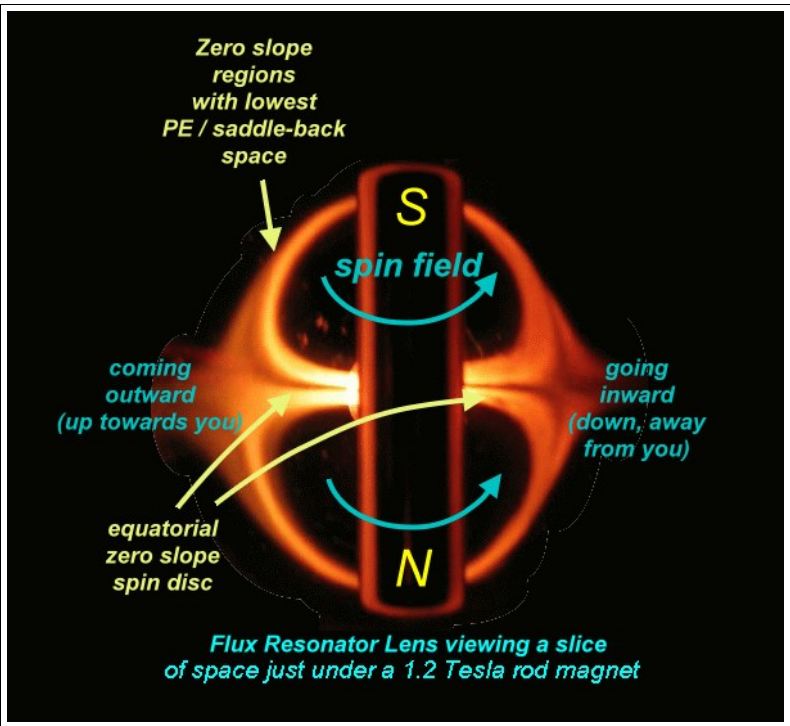
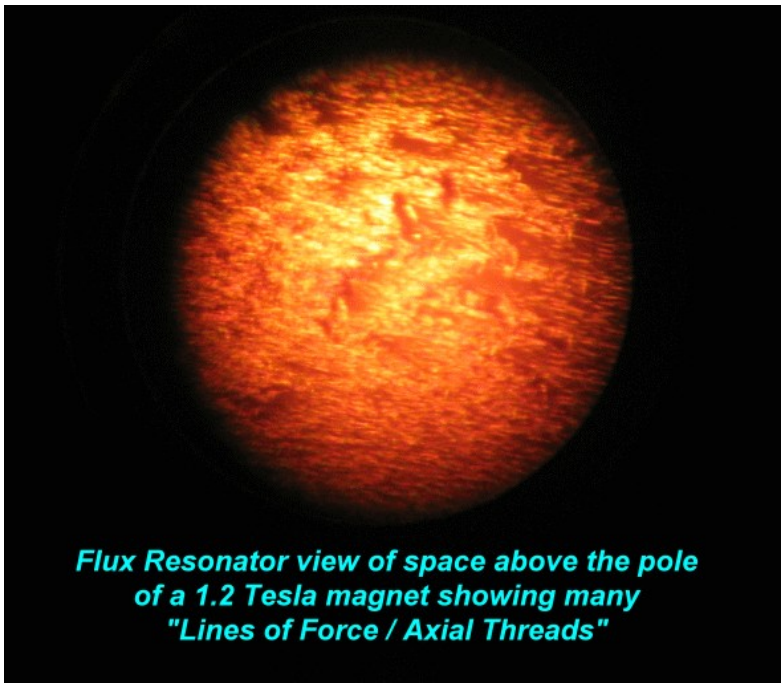


Image-B Apparent equatorial spin-disc about mid-section of a rod magnet, 3/4 view end-on.		
Image-C Spinning axial threads attached to the pole of a rod magnet appear DARK Notes 1: Each thread spins the same way so will side-to-side REPEL their fellows (see Attract-Repel-B showing co-side spinning bodies repel). 2: Each thread is far below sub-atomic in diameter 3: grouping is thought to be a function of the internal domains of the magnet.		

As viewing angles are changed, the glows formed by the “diffraction grating” will appear offset. It is difficult to interpret these so a “square-on” view is suggested for now.

It is possible to form other interpretations, but they become more complex. Lab testing might reveal another, presently unknown reason!

All that can be said for now is that glows mark lowest-bound PE space; to me this seems significant.

Final Words

The Flux Resonator is a simple, immediate way to view the space around a magnetic system, clearly useful to those investigating magnetic devices. If you have a complex arrangements of magnets,

then the lens can indicate the fields about the assembly.

Interpreting the images takes practice – the glowing arcs show the condition of space at the lens, not at the object being viewed.

As a general rule, the glows cross lines of force at right angles. To reduce complications, the images are best viewed with the light source square-on i.e. light - magnet - lens - viewer in a direct line.

EFD is much more developed then shown here and explains most magnetic devices, classic and exotic. I have not given enough information to derive the Hand Rules. With that, it is possible to go on to derive the rest of electrodynamics.

However, even this description of EFD explains the “magnetic gate”, a tube formed of many same-end-on magnets which curiously attracts the same pole. That is, the mouth of a tube of magnets, all with N to the same end - attracts another N. Draw the end-on view and the spin of each N; what's in the middle?

Have fun!

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