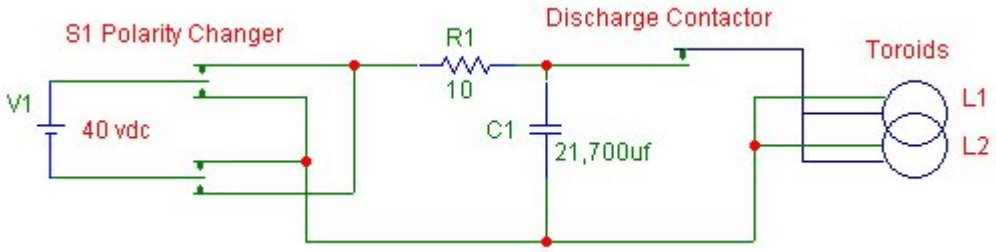
Telos Research

Toroid Coils and Vector Potential

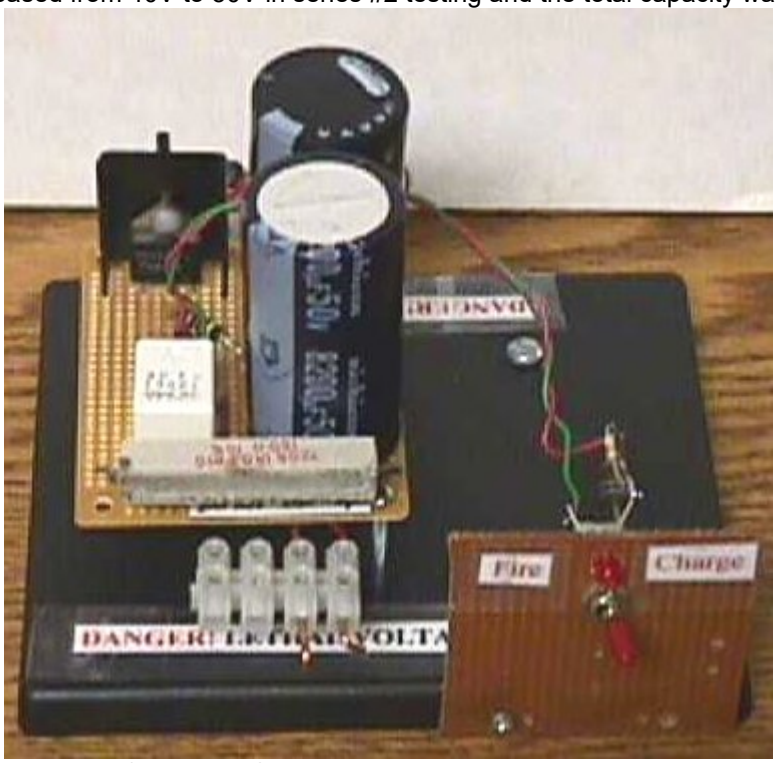
The Quarda Project was started by Advanced Technology Group (ATGroup) in May of 1999 and first phase tests were published on their web site (no longer available). Quarda research was prompted by a paper written by Rick Anderson[2] on the Vector Potential or A Field.

The following information is directed to those involved in the ATG/Telos Quadra test series. The information content is of little value to the general public or when when taken out of the context of the Quadra tests.

The Quadra test power supply



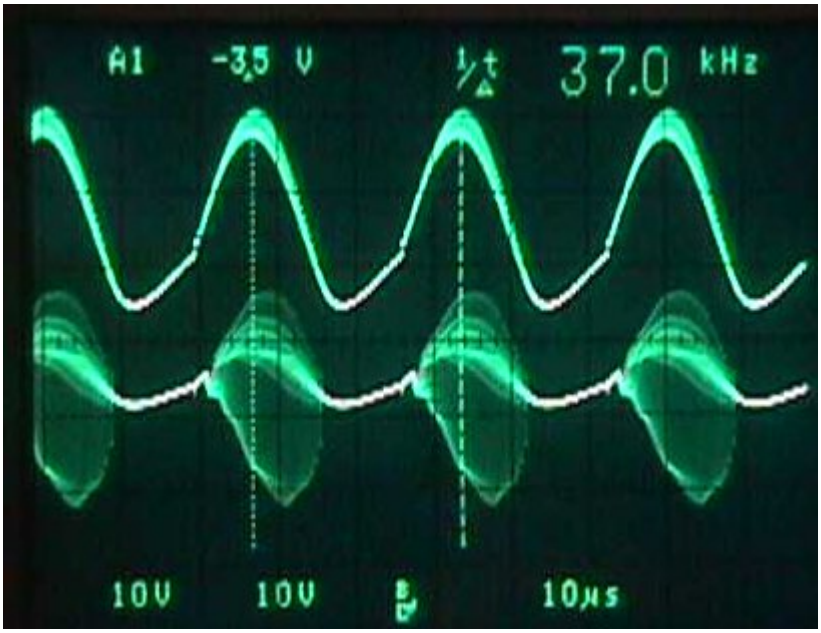
*Note that V1 was increased from 40V to 50V in series #2 testing and the total capacity was increased to 21.7Kuf.



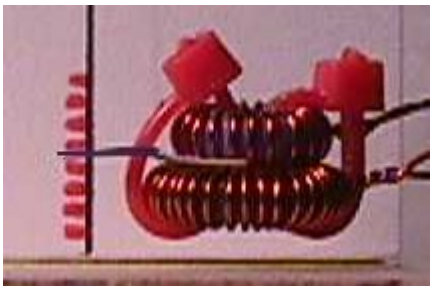
The pulse power supply consists of 2 x 8200uf capacitors charged to 50 volts, resulting in the pulse in Joules being equal to the

$J = \frac{1}{2} CV^2$ or $\frac{1}{2}$ 1.64E-2 * 50^2 = 2.04E1 W/sec

The strange oscillation seen in the Quadra test run, Series #3B, run #4.



Movement of coils caused from Vector Potential?

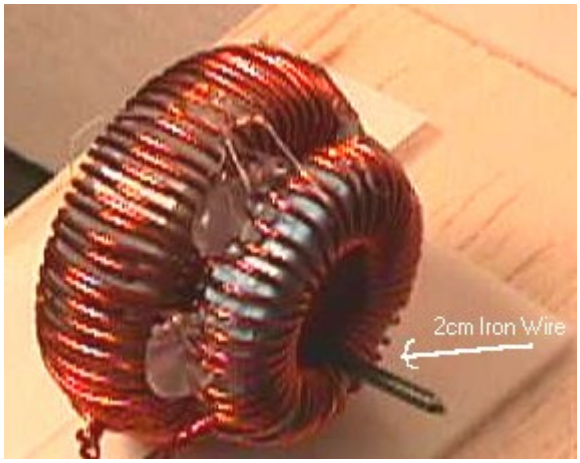


The coils visibly move upward against gravity when excited. The movement can not be attributed to wire heating on the leads that suspend the coils. The reason is that if the wire is heated, it would sag and the coils would move downward rather than upward. In addition the majority of heat would be generated in the largest resistance, which is the coils themselves. The resistance of the 1cm
lead lengths is a small fraction of the total resistance.

Ejecting the paper dot off the Quadra configuration

The small paper dot cut from 20lb paper is ejected off of the top of the coils when the coils are excited with a trigger pulse.

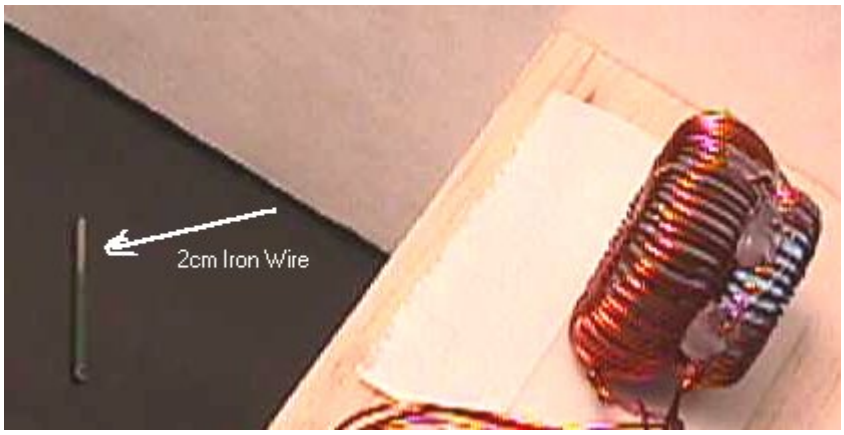
Ejection of a small Fe wire from the center of the Quadra coils, the loaded wire. This photo is for example only as the wire is loaded the the physical center of the coils and is not allowed to lay as shown in the photo.



It has been brought to our attention that other scientists have achieved or attempted duplication of the Quadra experiments. We are aware of four such works where the wire and paper dot ejection experiments were verified, although in one experiment published on a international web site, we must comment on that particular work.

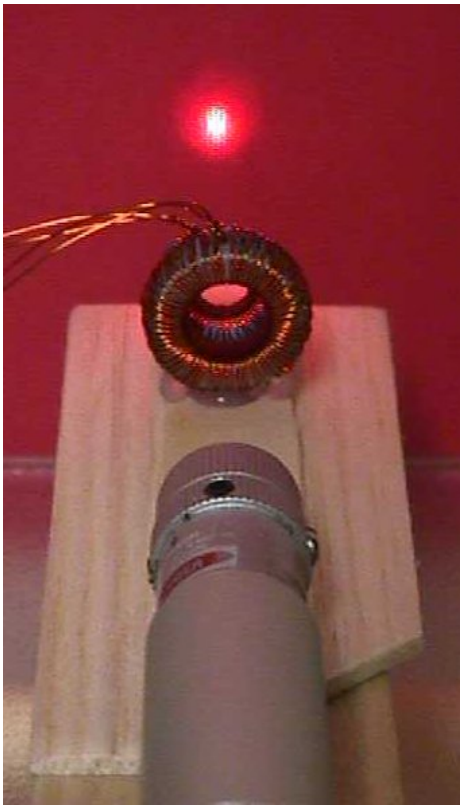
The experimenter has video documentation of the ejection of a steel wire from a Quadra coil set, although the conditions are somewhat different from the Quadra work. The experimenter loads the steel wire from outside of the coils, where as in Quadra the wire was loaded from the center of the coil set. The significant difference is that the pulse applied to the coil set will cause an action similar to a standard coil and core (solenoid) and rapidly pull the pin into the coil set. As the wire moves into the coil set it builds in velocity. Because the pulse decays rapidly, the wire with its mass and momentum are propelled on through the coils and out the other side.

In the Quadra work the wire is placed in the physical center of the coil set. With the wire already in the center of the coils using the solenoid approach presents some problem in that it is assumed the pulse to the coils will hold the wire in the center at its starting position. But, in Quadra coil sets the wire is still ejected at high velocity.

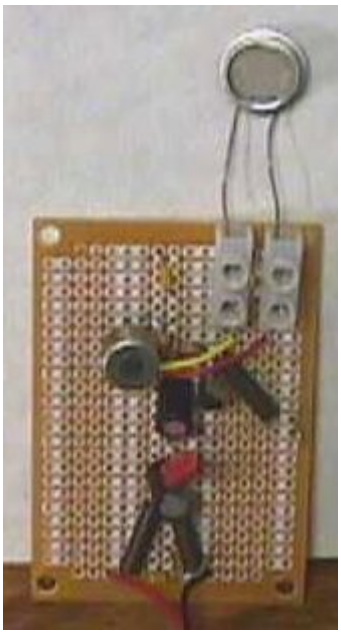


Notice that this is the same direction of force indicated when the coils are placed horizontal and move upward against gravity. Where in this test the Fe wire is pushed from the smaller to the larger coils, indicating the same direction of the force, yet not indicating the magnetic effect expected.

Can the Vector Potential (if it is the vector potential) bend Laser light?



The following is a picture of the photo sensor (without lens and light tube) that was used in the laser testing. The laser beam was adjusted to a 0.5mm diameter before striking the lense over the photo detector. Testing indicated that we could detect a shift of 0.25 degrees.



An increase in beam shift sensitivity was accomplished by construction of an end cap over the end of the detector light tube. Four holes were placed in the cap every 90' as shown in the following illustration. The beam was adjusted so that it fell just out side of the holes. If the beam moved in any way the photocell would detect light. The sensor was placed 15 meters from the coils and the laser light entered the coils from 20cm behind the larger coil.

Test Series #14L. Noted degree of shift depends upon the exit point of the beam. Shift difference noted when beam exits the large or small coil. The small coil does not as would be expected have a greater effect (possible focus effect) on the beam shift. Although both cores are of the same material the larger coil does indeed have a greater core

mass, which appears to offset the additional resistance in the wire owing to the larger overall size. The degree of shift depends on the beam passing through the exact center.

This does not imply physical center as core and winding consistency can and does cause an offset to the actual effective center, also there can be significant difference in the optimal centers of the large and small coils. In the first series of tests the two coils were fastened together, preventing any type of movement or adjustment. In the last seven tests of the series the coils were held in place by plastic adjustable retainers. It appears that if optimal center adjustment is not found that optimal shift will not be observed.

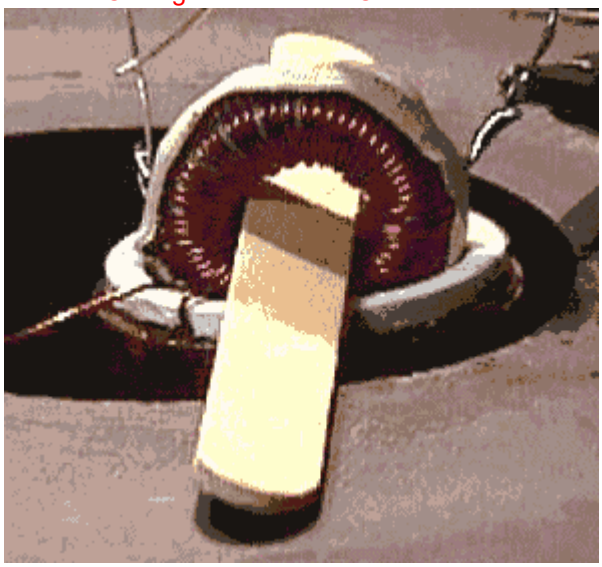
Diameter of the beam is of great importance, the smallest diameter passing through the coils, exhibit the greatest effect. There is although a point where decreasing beam diameter no longer continues to offer additional shift.

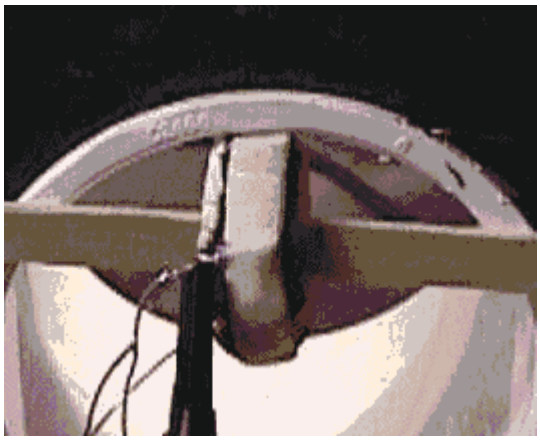
Tests #14L(8-10) were to determine shift difference noted on coherent versus incoherent light. It was determined early on that we were short in the optics lab area and personnel highly experienced in optics. We were unable to form an incoherent beam for use with the same distances used with the laser. We were forced to use reduced distance with beams of greater diameter, which would have nullified valid comparisons other than if a shift could have been detected.

We were not able to detect shift in incoherent light when passed through the coils. A well equipped and staffed optics lab would be required to prove or disproved effects on incoherent light.

Test Series #15L was not completed. The focus of the test series was on the effect of gravity on the degree of beam shift. The test series was to include a test on any shift difference between the beam and coils being parallel or perpendicular to the earths gravity.

Harnessing the A-Vector
Cutting the Lenz Law Connection





1 Advanced Technology Group (ATGroup), conducted research into alternate energy. The team was disbanded and all experimental data was assigned to Telos-Research.

[2]Rick Anderson, paper on the Vector Potential or A Field.

Revised: January 07, 2005