# Why we fail to see spin conservation in the quark realm:

The truth is that quark spin is seen as not conserved in quantum units in QCD even though spin should be conserved according to the quantum theory standard model. Electron spin is conserved in the realm of QED, which quantum theory views as the norm. But quark spin conservation, even though not presently seen, nevertheless is still there, but in another manner, and that's what this short paper is all about.

We are missing an important element in the conservation of spin just as we missed an important elenent in the conservation of energy before the advent of $E=mc^2$.

First of all you must realize what has happened to build the current standard model of quantum theory.

It took time to build and like Rome, it also was not built in a day.

As it was built, people then adjusted their thinking to the changing thought process.

In the beginning, the Bohr atomic model was accepted along with motion and the electron was accepted as moving around the nucleus just as the earth moves around the sun. While this gave us important answers about light quanta, this simple concept was eventually dismissed and entirely buried by various people all adding new wave equation math, which as time went on gave us far more accurate answers than Bohr's motion concept. The epitome of this wave math was Dirac's equation that answered almost everything.

So now, in the standard model of quantum theory, we look at it as all waves and wave interactions.

But then here is the caveat: We get tremendous accuracy this way but we lose something that even Dirac realized. We lose our splendid model. We lose the "big picture" of how things are actually working. Dirac predicted that one day we

would be able to see a good approximation of it all. And even Feynman in his famous *QED* shows us he saw that the concept of motion was extremely important.

Other spacetime realms react with our spacetime realm only at the wavelength level so when we wish to see these individual reactions, they can only be seen as wave interactions.

From our spacetime realm here, we cannot see the correct space and time of the electron's realm but we can see a spacetime component called *h* (Planck's constant). The best description of *h* is something I've taken from my old printed Britannica: "*h* is mass times length squared, over time". This equates with three things: momentum, Kepler's third law (equal areas in equal times) and a standing wave. So *h* is really a standing wave unit of momentum in one spin/orbit system that will be in resonance with other standing wave spin/orbit frequency units of momentum in neighboring spin/orbit frequency systems. An even smaller portion of *h* is *h*-bar, which is a unit of the electron's spin momentum.

Thus the micrososm entirely hides both its space and its time from us and only allows us to see these *h* spacetime, standing wave, momentum chunks, each of which react with a form of momentum resonance reaction with our spacetime realm here.

And this essentially is what quantum mechanics shows us.

Therefore there is no way your math is ever going to accurately show you the spacetime realm of the microcosm. You can only view these quantum chunks of spacetime momentum.

I learned all this many, many years ago. Perhaps some are learning it for the first time by reading this.

But it's what else I have learned that is simply, truly amazing.

And if the air pollution over Knoxville gets better, so I can once more get on the internet with my Starband satellite dish, then I will indeed post the revision of this paper on the internet so all can read it.

What no one seems to realize is that motion does indeed exist in the microcosm

just as Niels Bohr originally surmised. However, this microcosm motion is not our type motion but it can be related to our type motion via these quantum chunks. Someday the truth of this will be revealed when future computers replace the present special relativity with a type of microcosm general relativity that takes into consideration the surrounding electrons. The Hartree approximations are essentially doing something like this presently. Bohr's motion concept will then, once again, take on a whole new life for those wishing to see a **simple model** or a much better "big picture" of it all.

An approximate **simple model**, suggested by the concept of Occam's Razor and predicted by Dirac, is really what we want now. I believe this http://www.rbduncan.com/TOEbyFitzpatrick.htm puts forth the first **simple model** of the universe that anyone has yet put forth on the internet or anywhere else for that matter.

**Now comes a simple fact that present science has yet to learn:**

***This is a universe in which spin conservation is every bit as important as energy conservation. Not only that but while energy can be turned into matter (moving it into a different spacetime realm) spin also does this but in a slightly different manner.***

In all electric motors the angular momentum of the shaft of the motor is nothing but displaced total angular momentum of the change in spin of all the individual electrons causing it. Also the direction the motor shaft is turning is dependent upon the **spin direction** of the electrons as their spin is changed. In other words: not only is the angular momentum conserved but the spin direction, as well, is conserved but in a different manner than in quantum theory.

But we must totally understand spin conservation, which we are not doing today (2005).

This can be easily seen in the simplest electric motor: the first electric motor that the world ever saw that was built by Faraday. This motor has a magnet with the poles up and down in a conducting liquid. A wire hanging over the center of the magnet will go round and round the magnet if the end of the wire is in the mercury or salt water solution surrounding the magnet. The direction of the wire will reverse if either the current is reversed or the magnet is reversed.

Essentially what is happening here is that the conducting electrons in the portion of the wire directly over the center of the magnet pole are all spinning in the same direction as those causing the magnetism inside the magnet. But now as these electrons are either pushed up or down the wire by the electrical current, their spin is being altered about 180 degrees. The electrons in the portion of the wire in the solution -- at the side of the magnet -- have their spin reversed about 180 degrees from the electrons that are in the portion of the wire directly over the magnet pole. With current through the wire in either direction, the wire will gain not only the angular momentum of the electrons but will have a spin based on the change of electron spin direction as well. The energy replacing this angular momentum energy comes from the electric current. **This is how all electric motors really work.**

What you have to realize is that Newton's third law of motion "Every action has an equal and opposite reaction" is a universal law that works in the microcosm and macrocosm as well as here. And this is what is responsible for spin conservation and the transfer of spin from one spacetime realm to another. In electric motors you are essentially shifting the spin from the electron's spacetime realm to our spacetime realm here.

Or if you prefer not to use Newton's third law but view the electron as having **gyroscopic torque** then as the electron reverses spin, this torque will propel the wire in the same direction as in the above paragraphs.

**Gyroscopic torque** exists because all spin is being conserved by the surroundings.

Berkeley, Mach and Maxwell told us inertia was caused by the surroundings now it is plain that **gyroscopic torque** is showing us that spin is being conserved by the surroundings.

You can't look at the electron as simply having plus and minus charge and obeying the laws of magnetism.

You have to be looking at the bigger picture that tells you **WHY** the electron seems to obey these laws of magnetism and plus and minus charge.

With light, heat and radio waves, in the QED realm, the space and time in one

realm does not match the space and time in other realms so this exchange, with light, heat and radio waves must always be made using these quantum chunks accepted by either realm.

So you must consider Niels Bohr was right, all the time, if you want the approximation that Dirac predicted and the simple model that Occam's Razor demands.

This does not diminish, in any way, the wave aspect of quantum theory but it gives us a splendid look at **another way** in which this entire universe must be working.

However, Using this Occam's razor approach, when you use motion you will only get a subset view for one particular spin/orbit frequency realm, reference frame.

Quantum theory, string theory and all these type resonance theories also have a big disadvantage in that a simplified Occam's razor, **simple model**, approach is impossible because they eventually become so complicated.

This has given us the big problem that remains with us today in 2005. There will never be a simple answer using wave mechanics. And GQdel's proof rules out exclusively using motion everywhere. Kurt GQdel proved these subset views (motion) may make you think you have discovered universal laws when you have not.

But all is not lost because you can get an extremely good view of this entire universe by using both wave views and motion views together, and by remembering not to exceed the motion parameters of any single spin/orbit frequency realm.

Use *Ampere's Universal Particle/Motion Law* for that.

The final question, though, is where did this vanishing quark spin go in QCD?

Well, if you read my other things on http://www.rbduncan.com/ then you will see that while magnetism is derived from the electron spin, that gravity is derived from the quark spin. It is this missing quark spin in QCD that is being transferred to all the gravitational components of this universe being conserved in their spins.

So the conservation of spin, in this entire universe, ends up equally important as the conservation of energy.

*Over 4 Decades of Daniel P. Fitzpatrick's Books, Papers and Thoughts*

*DPFJr*