# Re: Octonian Wavefunctions −Still Any Research Today?

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- *Date*: Fri, 1 Feb 2008 19:25:12 −0500 (EST)

On 29 Jan., 16:47, Doug Sweetser <dougsweet...@xxxxxxxxx> wrote:

> +Hello Peter:
>
> There simply is no better training that rewriting fundamental laws of physics in your own nomenclature. I say this based on my own experience at quaternions.com where I have done that for a substantial number of laws, and should do it for more. That said, all such work, great as it was for me, doesn't have a value to the larger physics community. The only issue that can matter is if it changes something fundamental.

Hello Doug,

You have a really good point here, I know that from personal experience. My attempts of rewriting things, did probably not caught much attention in the first place; but guess what: My OWN understanding was greatly improved. −And that's usually how it is, even on Internet.

Finally, I found your site quaternions.com, sorry I confused it with a site called quaternion.com in the first place...Good luck with your work, I'm also just so fashinated by these quaternions, that I really want's them to be "the physical dimensions" in the universe.

You are working with something important, I understand, but honestly I've still haven't read so much on your site. I'm looking at it, and I would just like to ask, if it's ok if I send you an email about it later?

[And sorry, english/american is just not my native...]

> Let me give you an example. I decided to take a class on special relativity and solve all the problems assigned in two ways: one using the global Lorentz group, or by using quaternions. I was able to solve all 52 questions asked in the problem sets both ways. It was

> only years after that I was able to see the full scope of that project. A fellow named De Leo in the mid 90s figured out using quaternion triple products how to represent the global Lorentz group. That was good news. Yet I was not aware of his work at the time I ground through those problems. Instead, what I did was develop a way to solve all the problems locally. For many of the simple problems, the solution was quasi−global, the local dependence disappearing because the problem involved the origin or some other lucky break. The more complicated problems had solutions that did dependent on the events under discussion. While there are certainly reasons to enjoy the power of global tools, the most important laws in physics are local laws, the standard model and GR being the prime examples. That issue − global versus local changes in inertial reference frames − is worth bringing to a wider audience, not the details of how I solved the problem sets.

Yes, and I admit, that some of my own major conserns are also about non−locality. I will not write a long story about it here, but that's true...

> Non−standard _usually_ does mean wrong. The reason is that standard approaches are vetted through the process of writing books, editing books, and then having said books be the basis of teaching classes in the subject. Again, this does apply to my own work. One reason I try to run my equations through Mathematica − despite its high cost in dollars and time − is to catch my own mistakes. Beyond mere algebra issues, there are conceptual issues that I paid no attention to, such as the spin of a coupling J^u A_u which Feynman worked out. So there is algebra and unconsidered issues to address. B. Adams question brings up another trap: if you decide to get along with the uncertainty principle and toss in another factor of i that commutes, then you no longer have a division algebra.

I still have to look at the question from B. Adams, but of course I will write a reply on it. (And sorry, maybe I will have to think about it for a little while first).

Non−standard usually means wrong: I must just say that I agree about it. You are right! −But on the other hand, working on something non−standard, that's almost to hard for anybody today, isn't it ? (:>)

> You claim:
>
>> It is possible to use proper time and position in a coordinate system.

> The details of this sound garbled to me. The Lorentz invariant proper time is calculated from the Lorentz covariant measurements of time and space. You need all 3 − covariant time, covariant space, and the invariant interval − not two of three.

That one is also hard to explain in a few lines, but I'm thinking about something like this. Either "four−vectors like this":

1) (proper time, x, y,z )
2) (mass, p_x, p_y, p_z)

Or the usual stuff, where we are talking about (t(x,y,z), x, y, z) or (E(p_x,p_y,p_z),p_x,p_y,p_z). Just have a look at it: Isn't it a problem when the first component of a vector is a function of the three last. −I just mean the math could be very complicated later.

>> If you consider the numbers known as quaternions, then I will claim that they are actually 4−Dimensional, the same way that I will say that ordinary complex numbers are "2−Dimensional".

> If I was a better math wonk, I would know how to say this right, but here goes. One can work with complex numbers on the manifold C^1. Complex functions then can depend on only one complex variable. Complex numbers are usually introduced on the manifold R^2. There are some folks who think the only way to think about complex numbers is on the manifold R^2. Yet most of complex analysis happens in C^1 using z and z*. If someone skilled in the jargon would like to clarify, I would appreciate it.
>
> The same goes for quaternions. People usually think about quaternions on the manifold R^4. Yet one can work on the manifold H^1. This time one needs the conjugates instead of one. I use q, q*, (iqi)* and (jqj)* as the gang of four to cover anything that could be done on R^4.
>
> My point about "3" is that a quaternion is composed of 3 complex numbers, not 4 complex numbers. The three complex numbers share the same real and have 3 imaginary basis vectors, covering the four degrees of freedom in a quaternion.
>
> The 'trick' comment was directed as much at the field of study known as string theory. I would prefer if professionals reserved the word 'theory' for a set of principles that can be used to make a great number of calculations which have all been confirmed by peer−reviewed physical experiments.

Ok, I understand what you mean.

> That bar has not been passed for the work on
> strings nor PSR8. The work on PSR8 is an area of study, and I do wish
> you luck in your work. A testable hypothesis − where your proposal is
> measurable different from the current theory − would justify studying
> PSR8. I saw no such testable hypothesis. This is common condition.

Yep, you're right: it's about experiments. And of course I'm a bit nervous about it, but I will just say it like this: If things are working with my PSR8, than you will probably hear more about it on quaternions.com, HeHe (:−>)

So far my site is very new, and I must honestly admit, that I might have been out a bit to early here in Sci.Physics.Research...

Sorry to those who might have been wondering...

Best luck with your work Doug,
PC

Ps. After your first questions, I added a bit to my forum, about "how to use the octonions". Maybe it's still not enough, but please have a look.

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