# Re: Albert Einstein

***Source:*** http://sci.tech−archive.net/Archive/sci.electronics.design/2005−02/1883.html

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***From:*** Kevin Aylward (*salesEXTRACT_at_anasoft.co.uk*)
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Gregory L. Hansen wrote:
*> In article x3NNd.43361$K7.33499@fe2.news.blueyonder.co.uk,*

*>>>*
*>>> Too bad, you were misleading.*
*>>*
*>> Oh... In what way?*
*>*
*> If for no other reason than because you proposed your favorite*
*> interpretation not as an unproveable picture competing (not very*
*> successfully) for the attention of the scientific community today,*
*> but as The Way Things Really Are.*

Nope. I have made many posts on the the non absolute nature of models.

*> Your description gave no hint that*
*> an additional set of fields are needed, which is not the usual*
*> formulation of QM.*

What additional set of fields did you have in mind?

*>*
*>>*
*>>>*
*>>>>*
*>>>>> But the position is not only unknown,*
*>>>>> it doesn't exist.*
*>>>>*
*>>>> Not according to the ensemble interpretation. The question is open.*
*>>>>*
*>>>> http://www.anasoft.co.uk/quantummechanics/index.html*
*>>>*
*>>> Kevin Aylward's interpretation, it seems.*
*>>*
*>>*
*>> What part of Leslie E. Ballentine, Professor at Simon Fraser*
*>> University, and writer of the text book "Quantum Mechanics, A Modern*
*>> Development" ISBN981−02−4105−4? did you have trouble understanding?*

>>
>> Or Dr Willem M. de Muynck
>> http://www.phys.tue.nl/ktn/Wim/qm11.htm#ind%20part%20int,
>>
>> or http://plato.stanford.edu/entries/qt−uncertainty/#2.3
>>
>>>
>>> On first glance, the two−slit experiment seems to be intractable in
>>> the ensemble interpretation.
>>
>> Nonsense. The ensemble interpretation gives correct predictions.
>> Period.
>>
>>> If we think in terms of classical
>>> particles that sometimes go through one slit and sometimes goes
>>> through the other, we do not get a diffraction pattern.
>>
>> What has classical particles got to do with anything? Listen up dude,
>> the ensemble interpretation, now get this, is not classical, its
>> quantum. Classical arguments are meaningless in the ensemble
>> interpretation.
>
> It's classical particles following classical trajectories determined
> by a new kind of classical field.

Nope. Nine. No. No. No.

As I said, you don't understand what the ensemble interpretation actually is at all. I know where your coming from, there is classical ensemble approach used in the past, but the ensemble described by Ballentine, Einstein, has *absolutely* *nothing* to do with that version. It certainly does *not* propose any trajectories for particles in the slightest. You must be confusing the ensemble with some other approach, like Bohmian mechanics.

The ensemble approach simple says, essentially, that the state vector does not apply to an individual system. That's it. Trajectories are just as undefined in the ensemble approach as they are in the standard approach.

>>>
>>>>
>>>>>
>>>>> The old question of classical atomic physics was why doesn't the
>>>>> electron radiate away all its energy and fall into the nucleus.
>>>>
>>>> This is trivial. Maxwell's Equations are *wrong*. End of story.
>>>>
>>>> The correct equations that describe E&M is QED. Maxwell's Equations
>>>> are just a continuous *approximation* to QED.
>>>

*>>> Guess what... QED still uses Maxwell's equations,*
*>>*
*>> In a sense yes, Maxwell's Equations are derived from QED, as an*
*>> approximation. Nothing changes, Maxwell's Equations simply cannot*
*>> explain the photo electric effect, ergo, they are *wrong*. What part*
*>> of that are you having difficulty with?*
*>*
*> You have that backwards. QED was derived from Maxwell's equations.*

Maxwell's equations were used as a guide. QED contains more information then Maxwell's equations. Sure, QED was *motivated* by Maxwell's Equations as a tool, just as many equations are motivated by incorrect ideas. What you are claiming is essentially, that the shrodinger equation was derived from the Borh model of the hydrogen atom, which of course, fails on other atoms.

*> Sure, nowadays they impose U(1) symmetry on the Lagrangian and show*
*> that QED falls out. But that's a more recent development. QED was*
*> derived by taking Maxwell as the foundation and quantizing the*
*> fields. There's various ways to do that, but it's usually done*
*> through the Lagrangian.*

Simple irrelevent.

*>*
*>>*
*>>> but with the state*
*>>> describe by a vector in Hilbert space rather than in phase space.*
*>>> Promote variables to operators, slap kets on it for the operators to*
*>>> operate on. Most texts start with the Maxwell Lagrangian, but*
*>>> review the derivation and see where it says Maxwell was wrong.*
*>>*
*>>*
*>> What's your point? Either Maxwell's Equations explain the photo*
*>> electric effect and black body radiation, or they don't. Guess what,*
*>> they don't.*
*>*
*> Maxwell's equations exist in a mechanical context−− the transformation*
*> rules and the description of state are imposed externally. In the*
*> 19th century they were used in a Galilean paradigm. When we went*
*> Einsteinian that didn't change Maxwell's equations any more than*
*> relativity changes F=dp/dt. When we go quantum we say A_a no longer*
*> represent the field, they represent operators that act on the kets.*
*> But the equations of motion still look like Maxwell's equations.*
*>*

Look mate, do Maxwell's Equations, as is, explain the photo electric effect and black body radiation, or not?

Nothing you say changes these facts.

*>>*
*>>> Greiner's*
*>>> text "Field Quantization" makes the similarities between classical*
*>>> and quantum field theory very clear.*
*>>*
*>> Again, what's your point? Classical theory is wrong. It don't agree*
*>> with experiment. So, there there are some similarities, so what.*
*>*
*> There aren't just "some" similarities, and it's no coincidence that*
*> those similarities exist. Nearly the entire theoretical machinery of*
*> quantum field theory is lifted straight from classical field theory.*
*> The fields become operators, the Poisson brackets are multiplied by*
*> i*hbar and called commutators, and off we go.*

Yes. I am quite familiar with Poisson brackets and their commutators
etc. So whats your point? We use the mathematical tools that already
exist. The fact that symbolically they look similar, has no baring on
whether there is any real connection. For me, its more a matter of luck.

*>*
*> You'd never know that after taking a course in quantum field theory.*
*> Very little of that was probably covered in the classical course,*

It was covered in my "advanced" mechanics course, e.g. H. Goldstein.

*>and*
*> it's introduced in the quantum course on an as−needed basis. So the*
*> students are delving deeper into field theory than they had before,*
*> possibly working in the second quantized formulation in a significant*
*> way for the first time in their lives, introduced to Green's function*
*> methods in the guise of photon propagators for the first time except*
*> maybe for a short section on scattering in their introductory QM*
*> class, solving particle−particle interactions in the quantum context*
*> that are more complicated than they had worked with in their*
*> classical class... And you wind up with students that can follow*
*> some recipies and think they learned stuff that only applies to QM.*

Sure.

Kevin Aylward
salesEXTRACT@anasoft.co.uk
http://www.anasoft.co.uk