

Re: please help my confusion about particles and irreps.

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On 2005-06-03, Eugene Stefanovich <[eugenev@xxxxxxxxxxxxxx](mailto:eugenev@xxxxxxxxxxxxxx)> wrote:  
> Aaron Bergman wrote:

>> I mean, in what sense is a quark a particle at low energies.  
>  
> I prefer to discuss more conventional particles as examples, e.g.,  
> electrons, photons... Quarks have not been directly observed  
> experimentally, so there remains a chance that they are just  
> mathematical artifacts. I also prefer to stay within boundaries  
> of simple quantum electrodynamics. My knowledge rapidly fades  
> away when you move to areas such as CFT, QCD, etc. I think that  
> QED, which is mother of all quantum field theories, should be  
> appropriate for discussion of the field/particle dilemma.

That is unfortunate and may be the source of some of your closed mindedness.

>> The particle concept also becomes iffy in curved spacetime, to pick  
>> another example.  
>  
> I have my own (rather strong) feelings about the concept of spacetime.  
> In particular, I don't believe that curved spacetime or even flat  
> 4D spacetime is a physical concept. The details of my  
> position are in the book. However, I believe, this is a subject  
> for another thread. The topic "fields vs. particles" can be discussed  
> without involving gravity or curved spacetimes. Could we stay within  
> QED, please?

The QED theory does not exist in a vacuum. (Hmm, that's an interesting pun. :-) Nor is it the sole application of QFT. Experience with other applications of QFT has taught us to look at QED in new light. We've learned of many situations where the particle concept does become outmoded. Unless QED is awarded a particularly special status, the status of particle interpretations in it has to be reexamined.

You may refuse to accept insight that comes from other theories, but others don't have to (and don't).

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Igor

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- **References:**

- ◆ **Re: please help my confusion about particles and irreps.**

- ◇ From: Aaron Bergman

- ◆ **Re: please help my confusion about particles and irreps.**

- ◇ From: Eugene Stefanovich

- Prev by Date: **Re: A question of discrete space–time.**

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