

Re: Renormalization

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Igor Khavkine wrote:

>
>>(I have a few low order
>>terms of this Hamiltonian presented in the book; if you give me some time
>>I'll derive higher order terms that should be more than enough to do
>>practical calculations). With this Hamiltonian you'll never meet divergent
>>loop integrals, there is no need for regularization, renormalization, and
>>"infinity minus infinity" subtractions. As long as you don't ask me where
>>I got this Hamiltonian, your sense of mathematical purity will not be
>>offended.
>
>
> Your proposal does not alleviate any of the problems you want to fix.
> All the "nightmare" that you so dislike cannot be avoided. You simply
> become the only one who has to deal with it.

I believe that the "nightmare" of renormalization and dressing is the result of our poor understanding of what are fundamental principles in physics. I believe that the things we currently regard as "first principles" (in particular, local quantum fields and gauge invariance) are not true fundamental principles. Otherwise we wouldn't have such hard time in getting a consistent physical theory from them. It is true that starting from these principles we can, eventually, arrive to a working formalism, but as Chris said, the road is long, winded, and perilous. Probably we should think about choosing another starting point.

Eugene Stefanovich.