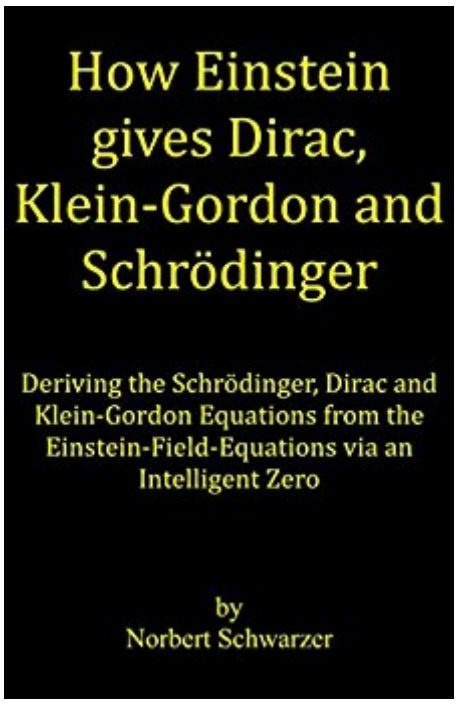
How Einstein Gives Dirac, Klein-Gordon And SchrÃ¶dinger: Deriving The SchrÃ¶dinger, Dirac And Klein-Gordon Equations From The Einstein-Field-Equations Via An Intelligent Zero



Synopsis

Taking the line element of any Einstein-compatible metric and quantizing it, thereby applying the method of the intelligent zero gives metric Dirac, Klein-Gordon and SchrÃ¶dinger equations.One might therefore consider the new equations as the Dirac-, Klein-Gordon- or SchrÃ¶dinger-forms of the General Theory of Relativity. It will be shown that what classically is the potential V, gives a metric distortion in the theory of quantized metric space-solutions. The connection will be derived in this paper by the means of the Einstein-compatible SchrÃ¶dinger equation.As an example, we will also derive the Klein-Gordon or Quantum Equation for a Schwarzschild-object. Even though it will not solved in this paper, some interesting conclusions can be extracted from the structure of that equation. By applying the usual separation approach one can easily solve the angular and the time-part of the equation, but faces problems with respect to the radial part. As expected one obtains the classical Klein-Gordon equation for zero-Schwarzschild radii. The solutions are slightly similar to those of the Hydrogen-Atom in classical Quantum Theory. Thus, the metric Klein-Gordon equation as derived here applied to the Schwarzschild metric and its brother the corresponding metric Dirac equation might be considered the Quantum Gravity equations in the case of spatial symmetry of revolution. One obtains all classically known quantum results in the case of bigger radii measured in units of the Schwarzschild radius Rs. Quantum Gravity corrections kick in for r being in the order of Rs. In this case, however, we will also find that spatial spherical coordinates are not suitable and have to be replaced by isotropic ones. In addition and in connection with the metric Dirac-solutions as well as the interpretation in connection with the distortion of space and time given here, we can now understand the whole quantum theoretical jitter just as jitter of space-time itself. â œJitter-concentrationsâ • appear as particles and virtual parameters, as introduced to our intelligent zero, account for the â œbackground quantumâ • or â œvacuum quantum fieldâ •. The space-time jitter itself provides the reason for the principal quantum uncertainty and the probability to find certain jitter-patterns as particles inside a certain sector of space. This of course is a bit different to the classical probability interpretation of the wave function of Born, but in essence, it is almost the same. In the opinion of this author, either having a space-time of wavy character and providing the necessary oscillations for our particles plus the jitter to make them hop around, or letting a probability function do this job, does not seem to be much of a difference. Only, so the author thinks, the jittering space-time picture gives a more figurative understanding where this all does come from.

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