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Phys 453 project

Path integrals in quantum mechanics

In the begining of this cource, you were introduced to the idea of ' quantisation' via defining a canonical commutation relation between position and momentum. You dealt with Schrödinger's equation of the wavefunction ψ.
However, there is another approach to quantisation, using the Lagrangian and action instead of the Hamiltonian, it is known as the Feynman path integral approach. You shall learn about it from the given references and summarise your understanding in the following points.

1. The thought experiment by Feynamn that lead to the path integral
2. Transition amplitudes
3. The propagator and Green's function
4. Example of the path integral.

You should include the references in your project

- Zee A. Quantum Field Theory in a Nutshell (2005)
- Sakuri. J. Modern Quantum Mechanics (1982)

Best Regards,

Dr Salwa Alsaleh