Review of: "Design of Quantum Gates Using Quantum Scattering Theory"

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This work on 'Design of Quantum Gates Using Quantum Scattering Theory' is interesting but should be supported by applications with numerical results, in my opinion, to better understand its interest.

The abstract should be shortened, and a conclusion should be added.

On the other hand, I think that the 'new' physics, starting from the definition of R=S-I and the theta variable in the middle of section 3 of the manuscript (and in the following time-dependent potential sections), should be emphasized with more accurate definitions. For instance, writing X=X(lambda) in section 3 does nothing, while X(lambda) should be explicitly defined as a ket (or bra) depending on lambda (|lambda>, right?).

Section 2 could be shortened too, as well as the beginnings of sections 3 and 4 (starting from the expression of S or R).

By the way, please number the equations.

Some typing errors and other comments:

- The symbol '\in' ('belongs to') is used instead of 'in' (without backslash) for the exponent of one Psi (bottom of page 3);
- Epsilon in the second equation must be defined (damping factor or inverse of time of life, right?);
- 'S' is not defined in the definition of Omega;
- Remove |phi> in the definition of Omega+;
- I think writing <f| E0(B) |f> = || E0(B) |f> ||^2 is wrong. The mean value integral of E0(B) on f is not equal to the module square of E0(B)|f>, or I don't understand this notation;
- Define the acronym TPCP when used for the first time in the manuscript, and put in reference the sentence 'Taken from lecture notes of Harish Parthasarathy, NSUT' (or provide full details for the reference).