Review of: "Quantum mechanics and symplectic topology"

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Potential competing interests: No potential competing interests to declare.

In this paper, the author addressed Non-relativistic quantum mechanics built from the indeterminacy relation with the aid of symplectic topology. In a conventional approach, one starts from the Hamiltonian $H=a^+a$ and constructs the coherent state $a|\alpha\rangle=0$.

In this paper, the author started with a squeezed coherent state, exploited its symplectic topology using indeterminacy relation, and derived the Schrodinger equation. The entire paper mainly rests at the heart of Fidelity and mistaken identity. This section requires a better explanation.

I have following criticism

1. In the section squeezed coherent states, the author identifies $\varepsilon=(h/2\pi)^{1/2}$. Why should be $(h/2\pi)^{1/2}$? It can be any thing else right? In conventional approach $\varepsilon=(h/2\pi)^{1/2}$ comes from uncertainty relation.
2. The entire paper mainly rests at the heart of this section Fidelity and mistaken Identity. In my opinion this section is poorly written. In fact, the way author arrived at the fidelity of pair of pure states is not clear to me. If one accepts or assumes this definition rest of the paper is straight forward. The author should rewrite this section for a general audience.
3. The author gives following postulates

a. The state of a system is represented by its set of symplectic capacities on the complex-valued phase space.
b. The symplectic capacity of a state is constrained from below by the Gromov width $c_G=h/2$.
c. The probability F that the identity of a state ξ is mistaken for any given member of its M-dimensional quantum ensemble {η1,...,ηj,...,}
F=Refer to equation (30) in paper

where $\Omega(\xi,\eta j)$ is the overlap between the symplectic capacities of the pair of states ξ and ηj.
d. For a closed Hamiltonian system, the probability is conserved in time.

This approach avoids the Hilbert space formalism. But what happens to a case where one cannot have a squeezed coherent state? How will we adopt this formalism?.