Review of: "Correlating exciton coherence length, localization, and its optical lineshape"

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Potential competing interests: No potential competing interests to declare.

I appreciate the idea of authors for using solitons describing exciton and phonon interactions.

However, a square is missing in both equation 17 and 18.

Regarding the second derivative and the sqaure of function itself of wavefunction in 16, a missing sqaure in both wave function and potential expression is present in 17 and 18.

More generally, the solution for a non-linear differential equation in the form of "second derivative of the function" + "sqaured function" + "constant*function" should have the solition solution with sech^2(x) as wave and self-trapping potential.

The mathematical path is like followings:

the second derivative of sech^2(x) is d^2/dx^2(sech^2(x))=-2(-2*sech^2(x)*(1-sech^2(x))+sech^4(x)), the squared function is sech^4(x) and the function itself is sech^2(x), which makes the above mentioned equations have the solutions after several permutaion of terms. However, the function sech(x) = 1/cosh(x) does not have this property and thus is not the answer for soliton equations.

Therefore, I suggest the author to amend their mathematical part regarding solution of the Schrödinger equations and refine their results. The rest parts of derivations are generally ok according to the definitions.

Best regards