



SDI Review Form 1.6

Journal Name:	<u>Physical Science International Journal</u>
Manuscript Number:	Ms_PSIJ_37038
Title of the Manuscript:	Generalized Uncertainty Relations in Quantum Mechanics and the Principles of Completeness in Physics
Type of the Article	Original Research Article

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	In the following lines I explain why I ask the Author to revise the paper. The Author aims to present an alternative to a generally accepted form of quantum mechanics calls the Copenhagen interpretation in general and the Heisenberg uncertainty relations in particular. In my opinion the paper does not convince ordinary readers and it should be revised. Here are few points: 1. The Author should show explicitly his nonlinear equation and explain how it yields explanations of primary quantum systems like states of the hydrogen and the helium atoms, the electron's spin and its magnetic moment, etc. It means that his alternative theory should not be worse than QM. 2. The Author should explain what is wrong with the experimentally confirmed energy width of the following particles (which are just examples of a general phenomenon): A. The \Delta^{++} baryon has a quite large width ([1], p. 131) which is related to the lifetime of this particle. B. The experimental red points of the electron-positron cross-section near 90 GeV, which describes the energy uncertainty of the Z particle (see fig. 1.2 here: https://arxiv.org/pdf/hep-ex/0509008.pdf). Also this width is related to the lifetime of the Z particle. C. The Author should note that relativistic covariance of these data yields the ordinary Heisenberg coordinate-momentum uncertainty. 3. What is the relativistic covariant form of the spatial gaussian factor of (11). 4. In the particle's rest frame k=0 and the Author's gaussian is just the ordinary wave packet which is a superposition of Fourier waves and each of which has its own energy. In other words, why k of (11) is independent of the gaussian waves? 5. The Author should describe with adequate references the developments of the data since 1999, as a continuation to the text at the end of section 1 of the Apeiron 1999 article mentioned in ref. [6]. References: [1] D. H. Perkins, {em Introduction to High Energy Physics} (Addison-Wesley, Menlo Park CA, 1987).	1. The required equation is $-\frac{\hbar^2}{2\mu}\nabla^2\theta + \frac{\hbar^2}{2\mu}\frac{\nabla^2(\theta\theta^*)^{1/2}}{(\theta\theta^*)^{1/2}}\theta + V\theta = i\hbar\theta_t$ Expression (12), page 5 in the revised article. This equation contains Schrödinger's linear equation in the simple case where the quantum potential (second term on the left) is null. 2. The extended uncertainty relations contain the standard relations as a particular case, routinely observed in most experiments. What we claim is that, under especially prepared experimental situations, it will be possible to go beyond them. Such is the situation with the scanning tunneling microscope, in our opinion. 3. A proper consideration of Special Relativity is still beyond our current efforts, so far our proposal is decidedly at the level of nonrelativistic quantum mechanics. 4. This is precisely what we propose to modify, at the most basic level: the waveform submitted in (11) is, by definition, non-decomposable further in terms of sinusoidal functions. That is, as in traditional wavelet analysis, a composite waveform will be the result of the sum of numerous wavelets, not of sinusoidal functions; se, e.g., ref. [5]. 5. An adequate source of information for developments after 1999 is ref. [4] .



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Minor REVISION comments	6. In eq. (6), the exponent is not right	6. We re-checked all our math and conclude, in particular, that (6) is OK (noting, in particular, the dimensions of the parameters involved)
Optional/General comments	I support papers that contain an alternative idea, but such a paper should have a convincing form.	