Volume 22 Issue 12
Originally issued as A3



Global Journal of Science Frontier Research: a Physics and Space Science
Volume 22 Issue 3 Version 1.0 Year 2022
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4626 & Print ISSN: 0975-5896

Gaps and Errors of the Schrödinger Equation

By Stanislav Ordin

Ioffe Institute RAS

Abstract- "Quantum" World, within the framework of which "outstanding" scientific discoveries are being made now, is built on initially laid nonsense. Quantum Theory was initially built on incorrect adjustment by Schrodinger of two-dimensional "solutions" of the One-Dimensional Harmonic Oscillator equation. These are the consequences of this fitting and "excite Minds". This is the reason why Quantum Mechanics is not necessary to UNDERSTAND, but it is necessary to ACCEPT. But they accepted and canonized, as it is shown in this work, non-physical, rough, approximate solutions. And it is on the basis of these solutions that electron orbitals, widely used in fundamental and applied science, are constructed.

But simply a rigorous mathematical analysis of the Two-Dimensional Oscillator equation in a rotational paraboloid gives reasons to believe that it is the Planck-Einstein Quantization moved away by the "evolvability" that gives a correct description of the parameter hidden for macroscopic measurements - de Broglie matter waves.

Keywords: *classical harmonic oscillator, rotation paraboloid, quantization, de broglie waves, two-dimensional model, resolved states.*

GJSFR-A Classification: *DDC Code: 530 LCC Code: QC23*



Strictly as per the compliance and regulations of:



© 2022. Stanislav Ordin. This research/review article is distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0). You must give appropriate credit to authors and reference this article if parts of the article are reproduced in any manner. Applicable licensing terms are at https://creativecommons.org/licenses/by-nc-nd/4.0/.

Gaps and Errors of the Schrödinger Equation

Stanislav Ordin

Abstract- "Quantum" World, within the framework of which "outstanding" scientific discoveries are being made now, is built on initially laid nonsense. Quantum Theory was initially built on incorrect adjustment by Schrodinger of two-dimensional "solutions" of the One-Dimensional Harmonic Oscillator equation. These are the consequences of this fitting and "excite Minds". This is the reason why Quantum Mechanics is not necessary to UNDERSTAND, but it is necessary to ACCEPT. But they accepted and canonized, as it is shown in this work, non-physical, rough, approximate solutions. And it is on the basis of these solutions that electron orbitals, widely used in fundamental and applied science, are constructed.

But simply a rigorous mathematical analysis of the Two-Dimensional Oscillator equation in a rotational paraboloid gives reasons to believe that it is the Planck-Einstein Quantization moved away by the "evolvability" that gives a correct description of the parameter hidden for macroscopic measurements - de Broglie matter waves.

Keywords: classical harmonic oscillator, rotation paraboloid, quantization, de broglie waves, two-dimensional model, resolved states.

I. Introduction

The qualitative description by Quantum Mechanics of the Periodic Table of Mendeleev and the chemical bond [1] overshadowed the catastrophic discrepancies between the experimentally obtained Ionization Potentials [2, 3] and the energy position of the allowed levels obtained from the Schrödinger equation. Be that as it may, the Schrödinger equation was canonized to such an extent that even Richard Feynman, who came close to the original Planck-Einstein Quantization in his path integrals, did not dare to declare his approach to correcting the canonized equation [4, 5]. And as Bob Laughlin said in his Nobel lecture: To describe any quantum phenomenon, it is enough to take the Schrödinger equation and solve it under new boundary conditions [6]. And his solutions give no less serious discrepancies with the shape of electron orbitals [7, 8 9] and with experimentally measured phonon spectra [10]. And, as follows from the analysis of basic models [11], a huge number of earlier works, including mine, built on the canonized "Quantum Representations", are simply fitting the results of experiments to quantum mechanical calculations. Whereas ELEMENTARY ANALYSIS, as will be shown below, shows that the Schrödinger equation itself is a very rough fit to Bohr's atomic model.

Author: Ioffe Institute RAS, St. Petersburg, Russia.
e-mail: Stas_ordin@mail.ru

The return of Mathematics to Physics by the senior telegrapher Havyside was actually a return to Newton's Physics, where they were UNITS. It helped both Maxwell in combing his Electrodynamics and Schroedinger in applying the operator method to describe the microcosm. So the very use of the operator method was undoubted progress, pushing both Dirac to build vector Quantum Mechanics and von Neumann to prove its Completeness. But the Completeness was obtained abstractly, for a set of operators, and was taken concretely as referring to Schrödinger solutions, which, as shown above, simply do not fit the careful characterization given by Einstein: "Some equations of Classical Physics allow rewriting in operator form". Einstein subtly sensed the dissonance of the equations with Reality, both some obtained by himself and some obtained by Schroedinger. That's what the analysis he conducted was pushing away from the verification of the Classical Equations rewritten by Schroedinger, from which Einstein himself (in the Theory of Relativity) was repelled by Bo with the phrase that he was taking on the role of God in determining the RIGHTness of the Classical Equations used. But God in Science is Logic, which must be followed, commensurate conclusions with Reality.

II. Analysis of Propositions and Solutions of the Schrödinger Equation

Einstein, pushed aside together with Planck, who laid the FOUNDATIONS of QUANTUM [12, 13], correctly formulated the method introduced by Schrödinger (actually for Schrödinger): “Some equations of classical physics can be rewritten in operator form.” But Schrödinger, using the Hamiltonian of the One-Dimensional Equation

$$\frac{m\left(x'[t]\right)^2}{2}+\frac{\kappa\left(x[t]\right)^2}{2}\equiv \mathrm{E}\Rightarrow \quad \Omega=\sqrt{\frac{k}{m}} \qquad (1)$$

and with the help of the introduction of the mystical wave function, he “got” the Stationary, again one-dimensional Equation in the “operator form”:

$$-\frac{h^2}{2m}\frac{\partial^2}{\partial x^2}\varphi[x]+\frac{m\omega^2x^2}{2}\varphi[x]=E\varphi[x] \qquad (2)$$

At the same time, Schrödinger acted as a professional fortune-teller, giving out the desired result and inventing all sorts of fables to “substantiate” it. He

© 2022 Global Journals

fitted, with phenomenological errors, Two-dimensional solutions - mystical wave functions of this, in principle, One-Dimensional Equation. Adjusted so that both quanta were (in the radial part of the solution) and two-dimensional orbits - orbitals (these solutions are given in all textbooks on "Quantum Mechanics"). In fact, he used Newton's method of separation of variables to find the wave function, which gives only a particular solution [14]. But on the radial and angular parts, which corresponds not to the One-Dimensional Parabola, but, in fact, to the Paraboloid of rotation (Fig. 1).

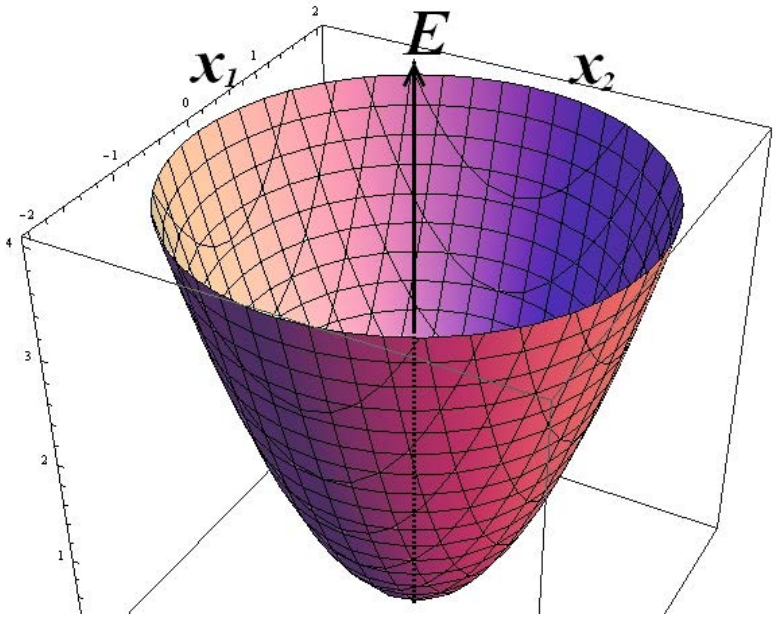


Fig. 1: True Hamiltonian "implied" by Schrödinger

The Schrödinger equation in its usual form (f.2) has a strict one-dimensional (radial), but not at all harmonic solution (f.3):

$$\frac{h^2}{2m}y''[x]+\frac{m\omega^2}{2}x^2y[x]=Ey[x] \quad (3)$$

$$y=C[2]ParabolicCylinderD\left[-\frac{1}{2}-\mathsf{E}^*,ix^*\right]+ \quad (4)$$

$$C[1]ParabolicCylinderD\left[-\frac{1}{2}+\mathsf{E}^*,x^*\right]$$

Where $\mathsf{E}^*=\frac{E}{h\omega}, \Lambda=\frac{h^2/2m}{h\omega}$ ™ $x^*=\frac{x}{\Lambda}$

The complete solution is the interference of two terms, depending on the real x purely real and complex, depending on the imaginary x.
And it is the real term that has the property

$$y=ParabolicCylinderD[n,x] \quad (5)$$

– The function is not equal to zero only in the area of origin only for integer values of n (Fig. 2).

© 2022 Global Journals

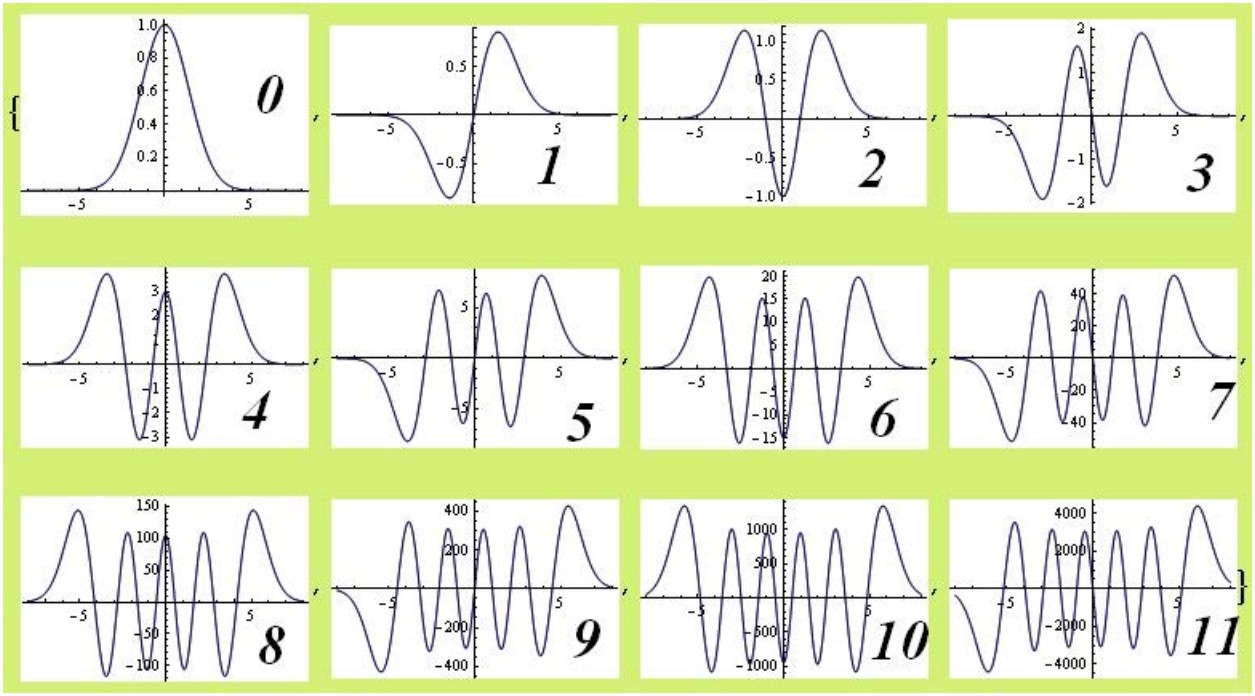


Fig. 2: Unnormalized functions of a parabolic cylinder converging at infinity for integer values.

Those. for the radial part of the wave function, we have the values of "allowed" (guessed by Schrödinger) energies, with the non-physical half of the "zero oscillations"

$$-\frac{1}{2}+E^{*}=n \quad \Rightarrow \quad E^{*}=n+\frac{1}{2} \tag{6}$$

This purely mathematical, abstract solution is not, strictly speaking, physical, since the function obtained, which describes the movement along a parabolic cylinder, when passing from one parabola of the cylinder section to another, undergoes a discontinuity of the derivative (Fig. 3).

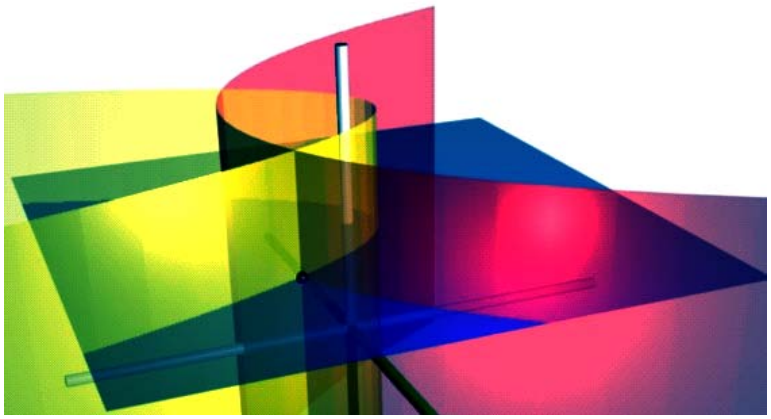


Fig. 3: Parabolic cylinder

The functions shown in Fig. 2 are not normalized, but in fact these are strictly obtained solutions for each "quantum" energy level, similar to those obtained approximately, but normalized "wave functions" of Schrödinger (Fig. 4).

© 2022 Global Journals

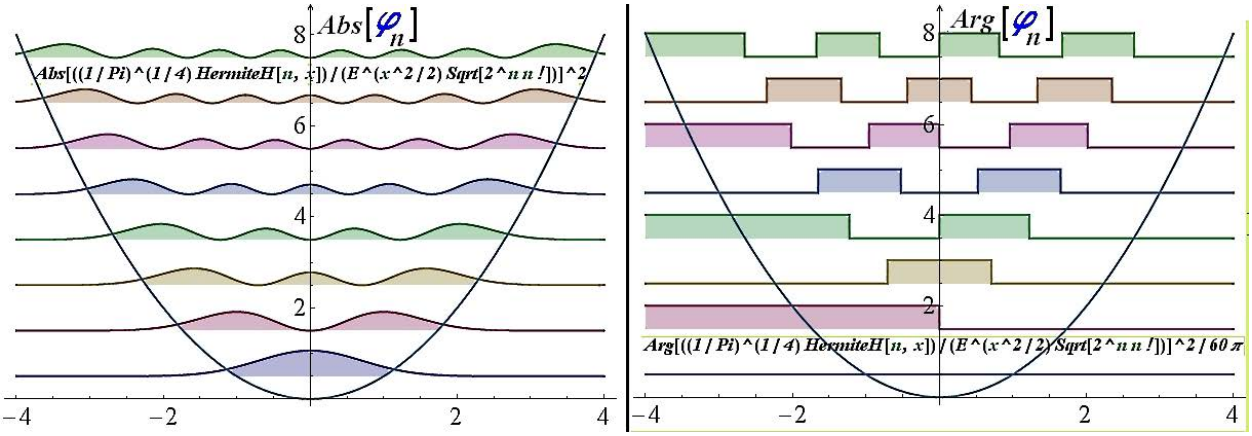


Fig. 4: Normalized "wave functions of the Quantum (one-dimensional) Oscillator" by Schrödinger: on the left - their absolute values, and on the right - their corresponding phases

As can be seen from Fig. 4, Schrödinger's fitting of solutions, in principle, to the incorrect equation of the "Quantum Oscillator", gave only absolute values of "wave functions" similar to physical functions (Fig. 4, on the right), which were interpreted by "quantum physicists" . But the phases corresponding to them are both absurd in magnitude and contain non-physical jumps - discontinuities in the derivatives.

The resulting abstract but rigorous solution is smooth (physical) dependences both on the actual values of the coordinate (shown in Fig. 2) and smooth dependences of the absolute value and phase for the term depending on the imaginary coordinate (f. 4). So, purely it is useful for initial, qualitative analysis.

First, as can be seen from Fig. 2, there are no halves of a quantum (Schrödinger). As can be seen from Fig. 4, the first level corresponds to zero energy. And the maximum of the hidden parameter of the particle is observed in the center, with its minimum bounce, which can be physically related to the fact that the minimum oscillation amplitudes near zero (Fig. 2, first inset) are smaller than the particle size. To be more precise, as follows from Pontryagin's dualism, even for an ideal Newton particle, its spatial uncertainty is less (the article "Analysis of Newton's Elementary Particle" in the book [13]). So, in relation to the electron orbitals of the atom, this term can be safely discarded.

Secondly, the first (and not one-and-a-half, as in Schrödinger) quantum level physically quite corresponds to finding a particle (somewhat blurred), but on a distinguished classical orbit, which will be analyzed in detail in the next part of the work "Correction of the Schrödinger Equation). We will not analyze the quantum levels following from formula 5, in accordance with formula 6, and so on, because taking into account its second, depending on the imaginary coordinate, term of the strict solution (f.4) gives the real and imaginary parts of the function limited in space, but not for all the numbers from formula (6), and also gives a number of additional numbers that also do not fit in any way into the canonized series of permitted levels according to Schrödinger.

III. Conclusion

It was from MISSION that the mysticism of two-dimensional mathematical solutions for a one-dimensional model was hidden behind the mystical parameter "wave function", to which the entire "understanding" of Quantum Theory was reduced to various interpretations. Thus, the correction of the original Classical Equation rewritten by Schrödinger in the operator form (correction of the Quantum Oscillator model) is required, and, possibly, the correction of the operators used by him. The correction of electronic atomic and molecular orbitals, which were directly associated with Schrödinger's solutions, will make it possible to solve the problems of many areas of science and technology associated with Physics. In the second, planned part of the work, within the framework of a two-dimensional model, ELEMENTARY Quantization based on harmonic de Broglie waves will be demonstrated.

References Références Referencias

1. George C. Pimentel, Richard D. Spratley, Chemical bonding clarifild through quantum mechanics, Holden-Day, Inc., San-Francisco-Cambridge-London-Amsterdam, 1970, 333 Pp.
2. IUPAC, Compendium of Chemical Terminology, 2nd ed. (the "Gold Book") (1997). Online corrected version: (2006–) "ionization potential". doi:10.1351/goldbook. I03208
3. Ordin S.V., "Quasinuclear foundation for the expansion of quantum mechanics", International Journal of Advanced Research in Physical Science (IJARPS), Volume 5, Issue 6, 2018, PP 35-45.
4. Feynman, Richard P. (1942). Laurie M. Brown (ed.). The Principle of Least Action in Quantum Mechanics. PhD Dissertation, Princeton University. World Scientific (with title "Feynman's Thesis: a New

© 2022 Global Journals

Approach to Quantum Theory") (published 2005). ISBN 978-981-256-380-4.
5. Feynman, Richard P. (2000). (ed.). Selected Papers of Richard Feynman: With Commentary. 20th Century Physics. World Scientific. ISBN 978-981-02-4131-5.
6. Robert Laughlin, "What is primary: Mathematics or Physics?" Lectures of the St. Petersburg meeting ofthe Nobel Prize laureates "Science and Human Progress" June 16-21, 2003.
7. Ordin S.V., «Theoretical and practical aspects of the analysis of atomic-molecular bonds», Journal of Chemical Biology and Medicinal Chemistry, Pulsus Journals-18-1020, Apr. 30 2018, 12 pp.
8. Stanislav Ordin, "Electronic Levels And Crystal Structure", Journal of Modern Technology & Engineering {ISSN 2519-4836} Vol.3, No.2, 2018, pp.125-142
9. Ordin S.V., "C & BN-Foundation for Atomic-Crystalline Orbitals", GJSFR-A Volume 18, Issue 5, Version 1.0, pp. 16-47,
10. Ordin S.V., "Frontier Chemistry Aspects", Global Journal of Science Frontier Research: B- Chemistry (GJSFR-B), Volume 20 Issue 2 Version 1.0, pp. 1-11, Year 2020, (ISSN Online : 2249-4626, ISSN Print : 0975-5896), DOI : 10.17406/GJSFR,
11. Stanislav Ordin, Book: "Refinement of basic physical models", Lambert, 2017, Project № 163273, ISBN: 978-3-659-86149-9, 82 pp.
12. Stanislav Ordin, Book: "Modern Physics", Second Edition », Lambert, 2021, ISBN 978-620-3-30509-8, 306 pp.
13. Stanislav Vladimirovich Ordin, Book: "Foundations of Planck-Einstein Quantization (Thematic collection of recent studies reviewed in scientific journals).", LAP LAMBERT Academic Publishing, 2021, ISBN 978-620-4-21066-7, 110 pp.
14. Stanislav Ordin, Review Article, "Non-Elementary Elementary Harmonic Oscillator", American Journal of Materials & Applied Science(AJMAS), Volume 3 Issue 1, Published date: 03/08/2021, Pages: 003-008.

© 2022 Global Journals