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Quantum Theory Proof Show by MATLAB Software

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1. Introduction

This paper is based on Numeric Estimation that for unsymmetrical figures has benefits. Also, this project by Finite Difference Method and Matlab Programming and knowing potential in boundary condition , field in Microwave Devices or parameters in Transfer Electronics Line obtain.

I means by this program, from differential equation of potential by knowning boundary condition distribution of bar in conjugate Waveguide Devices, obtain. Even, this program by drawing 3 dimential bar response , we can solve the some equations in power electronics also theory of Bose.Instain in Quantom Theory.

2. Numerical Methods For Modeling Of Field

Numerical methods such as finite difference و finite element TLM و moment, galerkin.but in this project, finite difference method has used.

3. Finite Difference Method

From methods above,finite difference method has chosen. And for unsymmetrical figures is better. For solve impedance specification in electrical lines , this method and programming has benefits. This model permits to solve differential equation by having procedures in computer program such as matlab software. And quantity aand shape obtain in 2d or 3d dimentions.

4. Quantom Theory

In physics, a quantum (plural quanta) is the minimum amount of any physical entity (physical property) involved in an interaction. The fundamental notion that a physical property can be "quantized" is referred to as "the hypothesis of quantization"[1] .This means that the magnitude of the physical property can take on only discrete values consisting of integer multiples of one quantum.

For example, a photon is a single quantum of light of a specific frequency (or of any other form of electromagnetic radiation). Similarly, the energy of an electron bound within an atom is quantized and can exist only in certain discrete values. (Atoms and matter in general are stable because electrons can exist only at discrete energy levels within an atom.) quantization is one of the foundations of the much broader physics of quantum mechanics. Quantization of energy and its influence on how energy and matter interact (quantum electrodynamics) is part of the fundamental framework for understanding and describing nature.

5. Quantization

While quantization was first discovered in electromagnetic radiation, it describes a fundamental aspect of energy not just restricted to photons. In the attempt to bring theory into agreement with experiment, Max Planck postulated that electromagnetic energy is absorbed or emitted in discrete packets, or quanta.

6. Quantum Technology

Quantum technology is an emerging field of physics and engineering, encompassing technologies that rely on the properties of quantum mechanics[1].Especially quantum entanglement, quantum superposition, and quantum tunneling. Quantum computing, sensors, cryptography, simulation, measurement, and imaging are all examples of emerging quantum technologies. The development of quantum technology also heavily impacts established fields such as space exploration.

7. The Superposition Principle

The superposition principle,[1] also known as superposition property, states that, for all linear systems, the net response caused by two or more stimuli is the sum of the responses that would have been caused by each stimulus individually. So that if input For example, in Laplace's equation with Dirichlet boundary conditions, F would be the Laplacian operator in a region R, G would be an operator that restricts y to the boundary of R, and z would be the function that y is required to equal on the boundary of R.

In the case that F and G are both linear operators, then the superposition principle says that a superposition of solutions to the first equation is another solution to the first equation:

A produces response X and input B produces response Y then input $(A + B)$ produces response $(X + Y)$. A function that satisfies the superposition principle is called a linear function. Superposition can be defined by two simpler properties: additivity

$F(x_1 + x_2) = F(x_1) + F(x_2)$

and homogeneity

$F(ax) = a.F(x)$ for scalar a.

This principle has many applications in physics and engineering because many physical systems can be modeled as linear systems. For example, a beam can be modeled as a linear system where the input stimulus is the load on the beam and the output response is the deflection of the beam. The importance of linear systems is that they are easier to analyze mathematically; there is a large body of mathematical techniques, frequency domain linear transform methods such as Fourier and Laplace transforms, and linear operator theory, that are applicable. Because physical systems are generally only approximately linear, the superposition principle is only an approximation of the true physical behavior.

The superposition principle applies to any linear system, including algebraic equations, linear differential equations, and systems of equations of those forms. The stimuli and responses could be numbers, functions, vectors, vector fields, time-varying signals, or any other object that satisfies certain axioms. Note that when vectors or vector fields are involved, a superposition is interpreted as a vector sum. If the superposition holds, then it automatically also holds for all linear operations appl

8. Boundary Value Problems

A common type of boundary value problem is (to put it abstractly) finding a function y that satisfies some equation

$F(y) = 0$

With some boundry specification

$G(y) = z$

For example, in Laplace's equation with Dirichlet boundary conditions, *F* would be the Laplacian operator in a region *R, G* would be an operator that restricts y to the boundary of *R*, and *z* would be the function that y is required to equal on the boundary of *R*.

In the case that *F* and *G* are both linear operators, then the superposition principle says that a superposition of solutions to the first equation is another solution to the first equation:

$F(y_1) = F(y_2) = \ldots 0 => F(y_1 + y_{2+}...) = 0$

while the boundary values superpose:

$F(y_1) = F(y_2) = F(y_1 + y_2)$

9. Quantom Superposition

In quantum mechanics, a principal task is to compute how a certain type of wave propagates and behaves. the wave is described by a wave function, and the equation governing its behavior is called the schrödinger equation. a primary approach to computing the behavior of a wave function is to write it as a superposition (called "quantum superposition") of (possibly infinitely many) other wave functions of a certain type—stationary states whose behavior is particularly simple. since the schrödinger equation is linear, the behavior of the original wave function can be computed through the superposition principle this way[5].

I. The projective nature of quantum-mechanical-state space causes some confusion, because a quantum mechanical state is a ray in projective hilbert space, not a vector. According to dirac: "if the ket vector corresponding to a state is multiplied by any complex number, not zero, the resulting ket vector will correspond to the same state [italics in original]"[6]. However, the sum of two rays to compose a superpositioned ray is undefined.

10. Conclusion

As these illustrations, for Quantom Equations and Being Reality this subject, My Software is a tool that provide correct Results for these Equations.

Acknowledgements

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Data Availability

For this project, MATLAB Software is on the board .Also, by my Reference Books has combined theory to a show and matrix calculation in Software.

Competing Interests

"The author declare no competing interest Non-Financial interest but the following Financial Interest to the results of this project….

Author Contribution

I want to declare for this project statement I am single author as kindly specified in the manuscript.

Conflict of Interest

"The author declare that there is not no conflict of interest regarding the publication of this paper"

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A sample of result of execution program by having boundary equation.

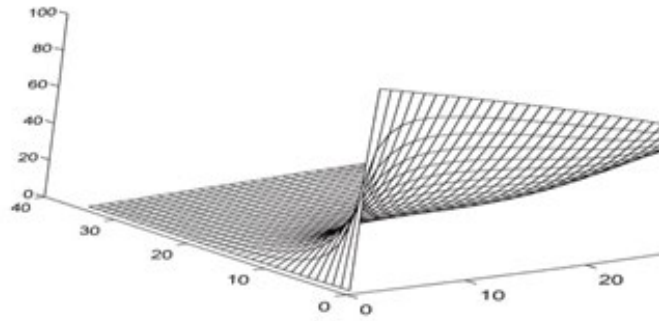

Figure 1: A sample of result of execution program by having boundary equation.

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