QUANTUM PHYSICS MODERN THE FOUNDATION OF SCIENCE

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Abstract: This article reviews the basic principles of quantum physics and their application in modern science and technology. The article is based on the historical development of quantum theory, the main principles - energy quantization, wave-particle dualism, Heisenberg's uncertainty principle, quantum superposition, etc.

Keywords: Quantum physics, wave-particle coupling , Heisenberg's uncertainty principle, quantum superposition.

Introduction

Quantum physics - vent physics at the beginning of the 20th century particles, atoms and subatomic level behavior explanation for working It is black . body radiation and photoelectric impact such as some events explaining give unobtainable classic physics to the limitations answer Max Planck was often cited in 1900 . energy continuous not , maybe so- called quantum discrete in packages existence offer when quantum theory development is considered to have started .

Quantum theory development in 1905 light in quanta or also exists in photons offer Albert Einstein did by further previously pushed . These wave-particles duality to develop take it came , this particles are also waves such as movement to do possible said idea and on the contrary .

Quantum theory development in 1913 in the atom electrons only known discrete energy degrees possession possible offer made by Nils Born of Work is also affected . This is today 's basic atomic structure even today to teach for usable of the atom Yes model to develop take came .

Quantum mechanics principles again one how much physicists , including Werner Heisenberg , Erwin Schrödinger , Paul Dirac and others by working was released . In the 1920s and 1930s, quantum mechanics principles today's still used today mathematician to the base converted .

Quantum physics main principles

Quantum physics principles often intuitive and understanding difficult . However , the theory for main was one how many main principles there is .

Energy quantization -Max Planck to their research according to , energy continuous not , maybe small portions - quanta in the form of This principle is quantum physics basically organization will reach .

Wave particle dualism - Wave Features :

- Particles diffraction and interference such as in events full
- For example , electrons two slotted full of experience

Particle Features :

• Particles hit or scattering in the events separately to the mass and to energy has was particles such as himself

• For example , a photon of light particulate nature more (photo effect event).

• Home part

• Heisenberg uncertainty principle

• Werner Heisenberg principle this emphasizes that the particle one of time in itself speed and location clear measurement impossible.Quantum mechanics quantum mechanics from the characteristics one is , of the particle location and impulse one full - time accuracy with measurement possible that it is not This restriction from the fundamental ability of nature come it comes out .

• Quantum superposition is one how many independent of effects clear impact every one of influence separately impact as a result to the surface coming of effects sum said is an assumption . Linear equations with described systems or fields for action This is a classic . physics many in the departments important importance has : in mechanics , vibrations and waves theory , physics fields theory .

• Text concretization known one to the field relatively possible . For example , in mechanics , the most simple in the formula , superposition principle reads :

• one how many external of forces to a particle impact result this forces of the impact vector sum ;

• every how complicated the movement two or from it more than to the ordinary to be possible .

• In electrostatics superposition the most famous principle : known one on point charges system by to the body cited electrostatic of the field power , separate of charges organization reached field of forces vector It is a collection . Superposition principle other formulas to receive possible , including :

• many particulate in the system all of particles mutually impact to do energy just of particles all possible was couples between couple mutually effects of energies is the sum — in the system many particles mutually impact no ;

• many particulate of the system movement descriptive equations particles number according to linear .

• See outgoing physics fundamental theory in the field linearity then superposition of the principle appearance to be reason will be .

Quantum physics in practice Application - Lasers performance mechanics stimulated emission principle based on done increases .

In medicine lasers surgery operations and in diagnostics used.Information in transmission optical fibrous communication in systems used in industry materials cutting and in welding used.From this outside computer chips creation quantum theory based on done increased and artificial intellect in development , financial transactions and state secrets protection in making , gravitational the waves measurement in the likes our phopydalation possible .

Light-wave length approximately ***1=400-770*** nm electromagnetic is a wave . Electromagnetic waves and charged your particle accelerating movement on time flying comes out . Rechargeable particle and

substance organization did atoms in the content are electrons . Royal's in the string sound not to be such as , your atoms light inside too No. Royal tori tattoo when given from it voice came out such as , atoms are also awakened from them light it comes out .

Atom wake up for to him/her any quantity energy to give The awakened atom has received energy immediately electromagnetic wave in the style of radiant Atom sends every always light release for to him/her from outside every always energy come to stand Atom wake up for need was of energy acquisition to the source looking at radiation following to types divided into :

Heat-resistant radiation : This is the radiation the most simple and the most many widespread is a type of . In this atomic wake up for need was energy atom and molecular and free electronic mail heat from the movement is taken . That is , atom, molecule and free electrons mutual inelastic when they collide kinetic of energy any part the atom to wake up spending will be .

The sun radiation , incandescence of the lamp radiation , oven heating and others heat to radiation example will be .

Electroluminescence : This is the emission of light. atomic wake up for need was energy fast flying electronic mail from the movement is taken . Quickly flying electrons atoms with inelastic when they collide kinetic of energy any part the atom to wake up spending will be . woke up atoms light take out begins . Gas discharge , north it was raining to this example be From electroluminescence advertisement records harvest to be done in pipes is used .

Cathodoluminescence Hard your body electrons With bomber when done illumination cathodoluminescence . Television electron beam of the traffic jam screen cathodoluminescence because of It lights up .

Chemiluminescence : Energy separated output with some chemical in reactions separated came out of energy any uprising rainy to the energy It turns into . That is , the atom wake up for need was energy chemical road with harvest This event is being held . chemiluminescence It is called .

At night shiny gold beetle , sea at the bottom living some fish chemiluminescence because of rainy It releases . hold received with hand It doesn't burn . It rots . going wood too sometimes in the dark light releases .

Photoluminescence . The body's rainy under the influence light release event photoluminescence It is called . Light substance atoms wakes up . As a result of the substance himself/herself light take out begins . Juniper toys luminous paints with They are covered . light after being poured then radiates .

Conclusion

Quantum physics not only scientific the field develops , but new technologies to the stage take This theory is in the universe the most small from particles pull the most big energetic to the processes was events to explain opportunity gives . Today on the day quantum physics research of humanity technological and scientific development for big importance has to be remains

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