ENERGY AND ITS TYPES.

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Abstract: Energy is a tool that we need to carry out any work or task in our daily life. Energy is a physical quantity that is transferred from one type to another and does not disappear by itself, as a unit (joule).

Key words: International units system, joule; atomic physics, nuclear physics, law of conservation and circulation of energy, matter, electron, kinetic energy Thermodynamics, free energy, mass, Heliotechnics, Heliophysics, Atomic reactor, Nuclear power plant

Energy (Ancient Greek: energeia) is the amount of ability of a physical system to do work relative to other physical systems.

Energy (Yun — movement, activity) is a quantitative measure of the movement of particles that make up matter of any form, in particular, a body or a system of bodies, and the interactions of these particles with each other and with other particles. In the International System of Units, energy is in joules just like work; and in atomic physics, nuclear physics, and elementary particle physics, the electron volt is measured. Energy does not exist from nothing, and existing energy does not disappear, it only changes from one form to another (see Law of conservation and circulation of energy). Physical matter is studied in the form of interconnected matter and field. Depending on the movement of matter, energy is conventionally divided into mechanical, internal, electromagnetic, chemical, and other types. For example, chemical energy is equal to the sum of the kinetic energy of electrons and the energy generated as a result of interactions between electrons and atomic nuclei. Depending on the parameters representing the state of a particular system, each state of the system corresponds to a specific energy value. The energy value of any state of the system does not depend on the method by which the system arrived at this state. Therefore, the energy is a function of the state of the system. The concepts of energy density and energy flow are used for the surrounding medium or field. Energy per unit volume is called energy density and energy density multiplied by its propagation speed is called energy flow. The amount of heat plays an important role in the interaction of systems consisting of a large number of randomly moving particles, that is, macroscopic bodies. For the mechanical movement of the system, external kinetic energy is generated, and the interaction of fields with other systems generates external potential energy. The external energy of the system is equal to the sum of the external kinetic and external potential energies. The energy of a system without macroscopic motion, without interaction with other

systems and fields, is its internal energy. The internal energy of a system in any state has a definite value, that is, the internal energy is a function of the state. Energies of atoms and molecules that make up the system, electrons in them, interaction energies of nuclei, etc. is part of internal energy.

The concepts of free energy and bound energy are rarely but widely used in thermodynamics. Sometimes heat energy is also included in the types of energy. The energy of chaotic motion of system particles is called thermal energy. As any body or elementary particle has energy, it also has mass. But there are also particles whose mass at rest is zero, and therefore their energy at rest is zero. These include photons and neutrons. The atomic nucleus is made up of nucleons. The rest mass of the nucleus is not equal to the sum of the rest masses of the nucleons. The difference between these two masses is called the mass defect of the AM nucleus. Based on the concepts of classical physics, the states of any system can change continuously, and its energy can have continuous values. However, according to the quantum theory, microparticles whose movements are occurring in space with a limited volume cannot be in any cases, it can only be in special cases, therefore, the energy corresponding to these cases will have continuous values. A system that receives a quantum of energy from the outside moves to a higher energy state. As a result of releasing a quantum of energy, the system returns to a lower energy state.

All natural phenomena, all human life and activity are related to energy. The vast field of energy is based on the concept of energy. Issues such as mutual exchange of energy forms, long-distance transmission of energy, use of its known sources, search for new energy sources are one of the main problems of science and technology. Water, wind, forests, coal, oil, gas, etc., are being used rapidly as a result of the limited resources of the earth, which are becoming less and less, therefore, the urgent problem facing the human society is to search for new sources of energy. The new sources of energy that are currently attracting attention are the Sun (see Heliotechnics, Heliophysics) and the atomic nucleus. The energy produced by the fission of heavy element nuclei is increasingly widely used in the national economy (see Atomic reactor, Atomic power plant). One of the most important issues is the use of the energy released during the formation of heavier element nuclei from the fusion of light element nuclei.

The law of conservation and rotation of mechanics is one of the most important basic laws of nature, according to which, in any closed system, energy does not exist and does not disappear, but only changes from one form to another. Burke, if there are only conservative (unchanging) forces in the system, the total mechanical energy of the system remains unchanged, that is, kinetic energy turns into potential energy and vice versa. If in a closed system there are non-conservative (variable) forces (friction forces) in addition to conservative forces, the total mechanical energy of the system

decreases with time. As a result, non-mechanical energies: thermal or chemical, electromagnetic field energies, etc., increase over time. But the sum of all forms of energy does not change over time. Depending on the nature of the processes taking place in the system, the law of conservation and circulation of energy and a. Q. expressed differently and written in mathematical form. In classical physics, the law of conservation of matter expresses the conservation of mass at rest. However, mass at rest may not be conserved, as in an annihilation event.

Internal energy is energy that depends only on the internal state of the body; chaotic (disorderly) advancement and rotational kinetic energy of the molecules that make up the body and the potential energy created as a result of the interaction of the molecules and the chaotic vibration of the atoms in the molecules is equal to the total sum of the kinetic and potential energy of the movement. The I.e. of a system of bodies consists of the sum of the I.e. of each body taken separately and the sum of the interaction energy between the bodies.

Types of energy:

There are 8 main types of energy. Each type of energy differs within itself. In general, it means the ability to work. We use most of the energy in our daily life. Therefore, energy is very important for our life.

Potential energy-Potential energy, the work of forces acting on a system, is related to the initial and final state of the system. This potential energy may depend on the distance between particles, gravitational forces, elastic forces or other forces.

Potential energy is related to the conservatism and energy conservation of a system. If these systems are not affected by external forces, that is, non-conservative forces (for example, frictional forces), the total energy does not change and the potential energy remains unchanged.

Potential energy is an important concept for various disciplines such as mechanics, electricity, magnetism, and chemistry.

Kinetic energy- In order for kinetic energy to exist, an object must be in motion. Kinetic energy is also known as energy of motion; examples such as a ball falling from a height, a person jumping into the air can be given.

Heat energy- The energy of high or low temperature substances is called thermal energy. An example of heat energy is a stove, a heater, a light bulb. Electricity is a type of energy that is broken down into many smaller pieces. Electricity is converted from different energies.

Light energy- This is the type of energy expressed in the form of heating the environment. An example of light energy; things like a light bulb, a lamp, the sun can be cited. The sun is the greatest light energy.

Chemical energy- The energy produced by substances as a result of a chemical reaction is called chemical energy. Chemical energy is the conversion of energy in ways such as absorption and loss. Thus, the energy of substances is released.

Nuclear energy- This is the energy produced by fission and fusion. It is produced in nuclear power plants. Nuclear energy must be produced in a careful and well-equipped facility. Otherwise, you can face very painful results.

Sound energy- Sound energy can be interpreted as breaking glass and damaging any object with a loud sound.

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