



جامعة المستقبل
كلية العلوم / قسم الكيمياء الحياتية
Wafaa ghalib : أسم التدريسي
: أسم المادة
السنة الدراسية : ٢٠٢٣ - ٢٠٢٤



Inorganic Chemistry

lec1

College Of Science



Introduction:

Branches of chemistry:

1. Inorganic Chemistry الكيمياء اللاعضوية
2. Organic Chemistry الكيمياء العضوية



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3. الكيمياء الحياتية Biological Chemistry
4. الكيمياء الفيزيائية Physical Chemistry
5. الكيمياء الصناعية Industrial Chemistry
6. الكيمياء التحليلية Analytical Chemistry
7. الكيمياء النووية أو الإشعاعية Nuclear or Radioactive Chemistry

Inorganic Chemistry:

It is the branch of chemistry that studies chemical compounds that contain elements except carbon. In other words, inorganic chemistry focuses on the study of compounds that do not contain carbon bonded to hydrogen, which may include elements such as salts and metals.

- Inorganic chemistry includes various chemical reactions and the study of the physical and chemical properties of inorganic compounds. Salts, oxides, acids, and bases are examples of compounds studied by this branch.

Inorganic Chemistry



Atomic structure:

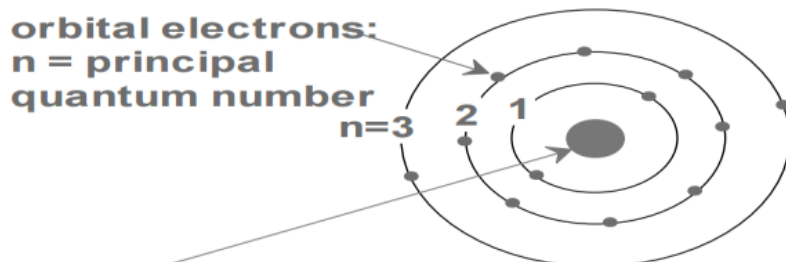
The atom consists of a central mass, the nucleus, which is positively charged surrounded by electrons

These electrons move around it, which makes up the orbit. The shape of the orbit in which it rotates varies

Electron. Both Bohr and Rutherford believed that the electron's orbit was circular, as shown in...

Figure below.

Bohr's Atom model



Nucleus: $Z =$ protons

$= 1$ for hydrogen to 94 for plutonium

$N =$ neutrons



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Atomic mass (A) = $Z + N$. Since nucleus are about 1840 times heavier than electrons.

But in general, the charge of the electron is negative, and the number of electrons is equal to a number

Positively charged particles inside the nucleus "protons", in addition to protons (P) are found

Neutrons (N) and their charge is neutral (mass of the nucleus = number + P + number of N ($\pm(n)$) does not enter

The mass of the electron in calculating the mass number or atomic weight of the atom due to the small weight or mass

Electrons are too small to count.

العدد الكتلي (mass number) = $P + N$

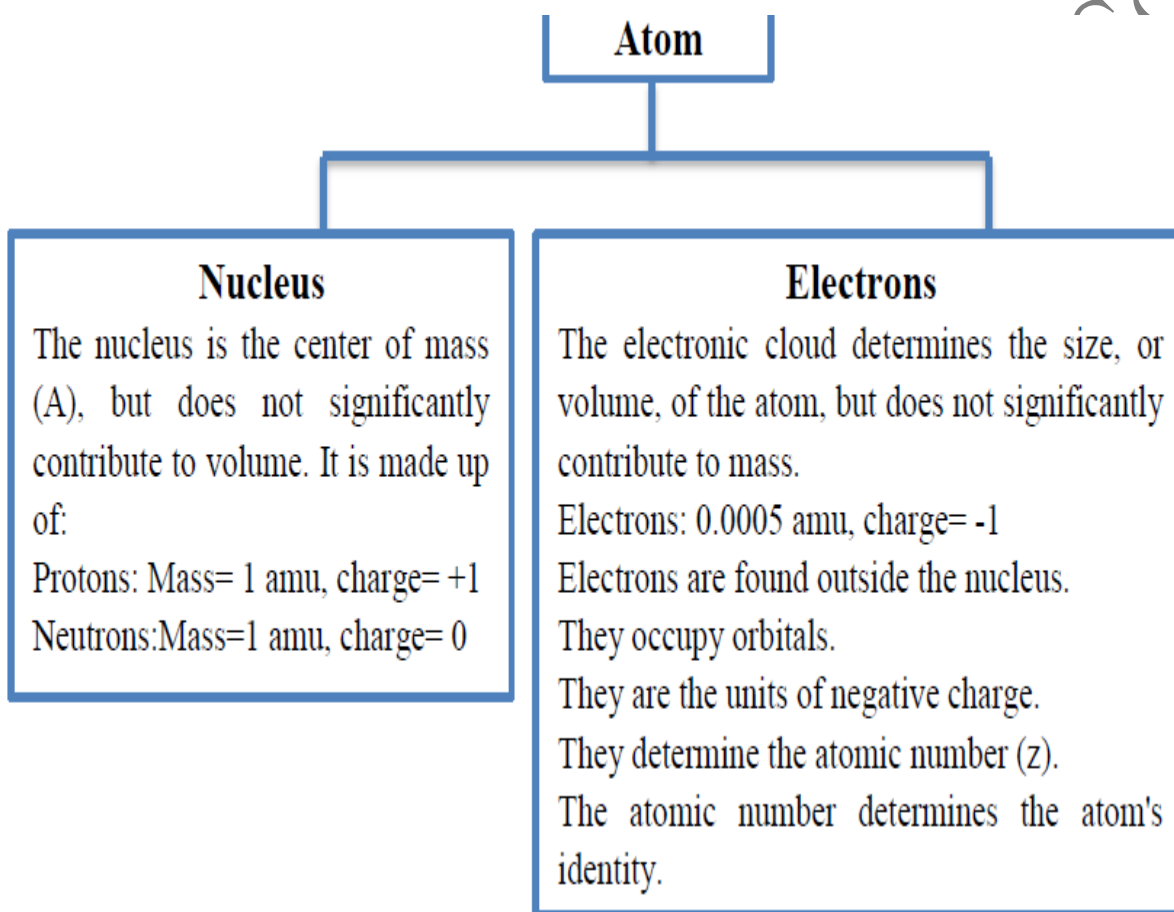
Mass number (A) = $P + N$

Mass of $P = 1.673 \times 10^{-27}$

Mass of $N = 1.673 \times 10^{-27}$

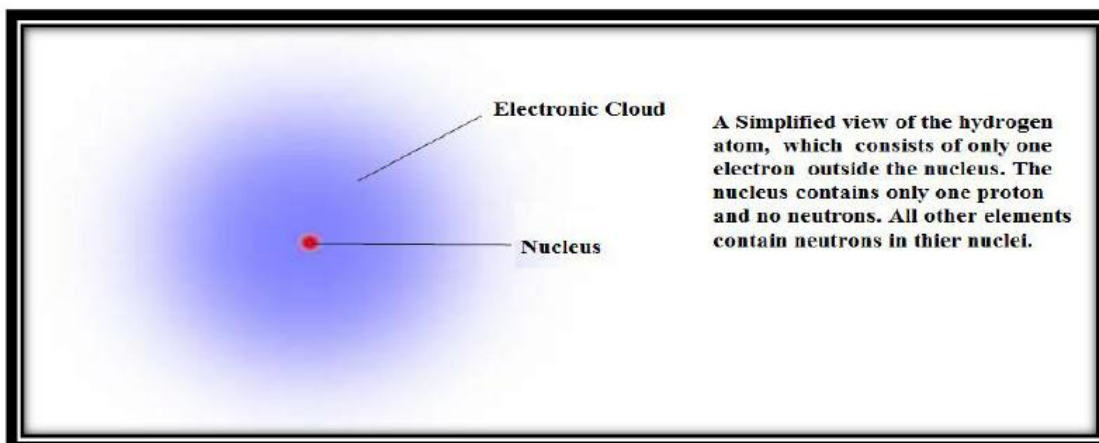


The following diagram summarizes the basic facts of the structure of the atom:

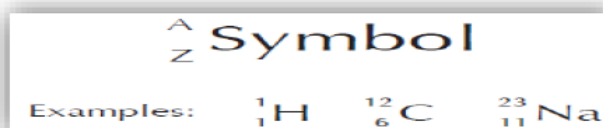




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Elements in the periodic table are indicated by SYMBOLS. To the left of the symbol we find the **atomic mass (A)** at the upper corner, and the **atomic number (Z)** at the lower corner.



Atom:

An element is made up of identical, extremely small units called atoms

The basic structural unit of matter is an independent entity and cannot be divided except under harsh conditions

It remains as long as the natural, universal conditions remain. The elements differ depending on their atoms and are composed of



Two main parts:

1-Nucleus

2- The electronic shell surrounding the nucleus

Nucleus:

It is the solid mass of the atom located at its center and consisting of particle particles bonded with To each other through non-electrical physical bonds called mesons, where they are connected Protons with protons, neutrons with neutrons, protons with neutrons

In addition to the other particles present in the nucleus, the nucleus has a positive charge and its magnitude is Number of protons

