Chapter I Atomistic–Chemical Liaison I.1.Description (for the hydrogen atom) To resolve the above contradictions, Bohr proposed four hypotheses: In the atom, the nucleus is immobile while the electron of mass m moves around the nucleus in a circular orbit of radius r.Atomic mass The atomic mass is equal to the sum of the masses of the constituents of the atom: mat = Zme + Zmp + Nmn (kg) The use of this unit is inconvenient, so chemical units that are easier to handle have been chosen; the reference term being carbon 12.Bohr model This model only applies to monoelectronic atoms, i.e. the hydrogen atom and hydrogenoids, i.e. ions with only one electron (He+, Li2+ ...).Nucleus The nucleus contains two types of massive particles; The proton has a charge of +1.60.10−19 C (coulombs), which corresponds to the elementary charge for a mass of 1.673.10−27 kg. – The neutron, on the other hand, has a zero charge and a mass of 1.675.10− 27kg.An atom is an electrically neutral unit with a central part, the nucleus (protons + neutrons), where practically all its mass is centered, and around which are electrons.It is always written with a capital letter, eventually followed by a small letter: Z is called the atomic or charge number and denotes the number of protons (it is also the number of electrons for a neutral atom).Relative atomic mass In the general case, an element has one or more isotopes, so the atomic mass is the sum of the proportions of each isotope.Mole and molar mass On our scale, we reason in terms of a certain quantity of matter called a mole: A mole is the quantity of matter containing as many atoms as there are in 12g of carbon 12.Definitions Matter is formed from elementary grains: atoms.Neutrons and protons make up an atomic nucleus, which is held together by the strong interaction between them.A is called the atomic mass number and denotes the number of nucleons (protons + neutrons).Isotopes These are atoms with the same atomic number Z but different mass numbers A. An element may have one or more isotopes.1023 By definition: One mole of carbon−12 atoms weighs .12g.Electrons occupy space in matter.I.1.2