

Nuclear Binding Energy Theory:

Abstract: In this theory I will explain the most important topic why nuclear binding energy exists and why mass converts into energy square times the speed of light which was not explained by Einstein. At the end I will give a reason for conversion of mass into energy and also I will give the reason for why the mass converts into energy square times the speed of light ($E=mc^2$). This helps to revolutionize nuclear physics, atomic physics and astrophysics. I will explain everything in detail without any suspicion or doubt.

Keywords: Atom, nuclear binding energy, nucleus, nuclear force, nucleons, mass, energy, $E=mc^2$.

Introduction: In this theory I will explain why nuclear binding energy exists in detail and to understand why nuclear binding energy exists in detail we have to understand the whole structure of atom of heavier elements. If you understand how the nature made the atom to exist and instantaneously if you understand what is the goal of nature to create atom in this manner means that division of atom into subatomic particles and that too with charge, you can certainly understand why strong nuclear force or strong nuclear binding energy exists in atoms of heavier elements. I will explain briefly how the nature created the atoms.

1. **Atom:** All of you know every element consists of atoms, atoms consist of nucleons. Most of the subatomic particles in the atom are differently charged and this is very high in number and there are only least number of particles that are electrically neutral (for example neutrons are electrically neutral) because the universe or the nature prohibits the loose packing of subatomic particles because if loose packing occurs it disturbs the properties of atom and the atoms disturb the element and the element will be no more safe because of existence of charged particles inside the atom in high number and these charged particles disturb the structural build up of atom made by the nature and if the structure of atom changes it will become electrically neutral because unlike charged particles in the atom will bind together. Hence to maintain the constant charge of atom and most of the subatomic particles in the atom in continuous constant charged position, the nature has created strong nuclear binding energy or nuclear force between the nucleons of every atom. For example if nuclear binding energy not exists the electrons no more will be in

revolution and electrons and protons will bind together and if this happens the nucleus will become electrically neutral in fact the whole atom will become electrically neutral due to the smashing of charged particles and the atom becomes electrically neutral. But the purpose of nature is to keep the atom and most of the subatomic particles in the atom in charged position and not in neutral position and for this the nature makes structure of atom and structural composition of all atoms by splitting it into subatomic particles with most particles positive or negative charge. Without the existence of charged particles, the atom will be no more safe and to maintain this the nature creates or provides strong nuclear binding energy. For this purpose only that is just to keep most of the subatomic particles in charged position the nature makes up or builds up strong nuclear binding energy or nuclear force and it maintains this constant strong nuclear binding energy or nuclear force because if this binding energy vanishes the atom will become electrically neutral and the atom will be no more safe. Now I will explain how mass converts into energy and what is the reason for mass energy conversion.

2. How mass converts into energy square times the speed of light?

Explanation: When you bombard a neutron the mass of atom converts into energy because when you bombard a neutron most of the unlike charged particles in the atom will collide and the charge of all the subatomic particles vanishes. Instantaneously due to vanishing of charge of all these subatomic particles structural disorder occurs in the atom and nucleus. This structural disorder in the atom makes the nucleons to separate from the strong nuclear force that exists between protons and neutrons. The separation of these nucleons from strong nuclear binding energy releases energy square times the speed of light. For reference read " Special Theory of Mass Energy Relativity".

3. Why Nuclear Binding Energy exists?

Explanation: Just to keep the atom and most of the subatomic particles in the atom in charged position very strong nuclear binding energy exists in the atom.

References:

1. Einstein's mass energy relation 1905.
2. Henri Becquerel in 1896 found nuclear binding energy.
3. Lise Meitner and Otto Frisch in December 1938 discovered first nuclear fission.