

Abstract

The crystal theory is about helping physics and chemistry with their many established results, with the emphasis on not depending so much on speculative properties but more on solid experimental work. Here we investigate mainly the stable and semi-stable isotopes of many atoms together with the chemical shell structure of the atomic electron cloud. The crystal theory does not model a nucleus and separate disjoint shells of electrons, but rather it considers an amalgamation of the two into one unit. After Einstein helped develop the theories of general relativity and also obtained a Nobel prize for developing the quantum mechanics of light he realized how incompatible these various theories were: action at a distance via mysterious fields and quantum entanglements was very puzzling. He searched in vain for some mechanism while quantum theorists gave advice that such mechanisms were impossible inside the current standard model and QM setups because of “no-go theorems” such as Bell-Kochen-Specker. These no-go’s are avoided in the crystal model because we believe that geometry (the Hilbert spaces and fields of forces and particles in the standard model) shouldn’t be assumed as a fact, always holding despite what scale is used. Although the crystal appears to be embedded into a standard 3-d Euclidean space with a body-centred cubic structure, the actual coordinates are not related directly to standard space, but to the properties time, magnetism and energy. There should be transformations that go from the crystal space to the standard “real” space but these are left for further investigation.

We develop the idea that forces (strong, weak, EM) do not operate at a distance via a field (e.g. electromagnetic), but by direct contact in a crystal structure that determines the various structural possibilities. It is assumed that the particles, atoms, nuclides and other stable or less stable forms such as neutrinos are bounded by bubbles in the crystal. They satisfy various quantum properties that are not easily modelled in the “real” world: especially spin, parity, charge. Many

of these are conserved in various interactions. Properties such as stability of a particle or atom can be interpreted in the crystal by seeing the shape. We look at interesting isotopes and atoms.

One of the main diversions from the standard model of physics is that the crystal theory has no obvious quark particles. But this might not be a major defect since quarks cannot be directly observed due to quantum chromodynamics. In any case it seems that is possible to explain much of atomic theory without them. The crystal theory gives ways to explain dark matter and many structural parts of quantum mechanics, such as the inability to look inside the nucleus, the meaning of spin (magnetism), charge and parity, and the existence of electron shells with their subshells, orbitals, pairings, energy levels, Pauli exclusion principle, Hund's rule for filling orbitals. We look at the formation of carbon-12 (a main component of life) and give the crystal interpretation of how it can be formed from three helium nuclides via the unstable Hoyle carbon state.