

Gravitational collapse may coagulate large lumps of atomic matter, but is hardly effective in bringing separate molecules together to form a body, and unable to create molecules, let alone atoms. Electrostatic and magnetic forces between nuclear particles are 40 orders of magnitude, stronger than the forces of their gravitational attraction. Hence, gravitation has no influence on the behavior of nuclear particles. A possible mechanism of their creation is a local collapse in the epola.

8.7. Epola Collapse as a Creation Mechanism of Atomic Nuclei.

Strong nuclear reactions may force bound electrons and positrons of the epola to distances so small that the short-range repulsion is either reduced or cancelled. Then the particles may approach each other so closely that nuclear forces start coagulating them. Such local collapse may create unstable nuclear particles, the smallest of which, the muon, consists of 140 electron masses. To create a neutron or proton, 1840 bound electrons and positrons would have to collapse. Thus, 1840 epola unit cubes would be emptied, creating around the newborn particle a hole, 65 fermi in diameter, 1500 times smaller than the hydrogen atom.

To create the nucleus of a copper atom, an epola sphere of a 250 fermi diameter has to be emptied. This is 800 times smaller than that of the copper atom, and the volume of the empty hole is only two billionths of the volume of the atom. Hence, *the creation of atoms by a local epola collapse does not require a draw-in of particles from distant regions, and the regular epola structure in and around the newly created atomic body can be quickly and smoothly restored.*

S U M M A R Y

The epola (**E**lectron **P**ositron **L**attice) model of space is based on the Michelson-Morley, Rutherford, and Anderson crucial experiments. Numerous other experiments prove and substantiate this model, and there is no relevant experimental fact of physics "outside nuclear particles," denying the epola model or unexplainable on the basis of this model. Moreover, the existence of the epola provides the only real physical explanation of the results of all these crucial experiments.

Based on the analogy between the epola and the sodium chloride

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crystal lattice, we use the derived formula for the velocity of bulk deformation waves in the crystal to calculate the velocity of such waves in the epola. It turns out that the velocity of bulk deformation waves in the epola is exactly the vacuum light velocity c . This is another argument in favor of the epola as carrier of electromagnetic radiation.

A slight transform of the velocity formula for bulk deformation waves in the epola yields the $E=mc^2$ formula. The formula is therefore a result of the epola structure of the carrier of electromagnetic radiation. It expresses energy relations for the freeing of masses from the epola bonds, and for their capture into these bonds. The formula has nothing to do with a "creation" of mass from energy or with "annihilation" of mass into energy. These fictitious processes fit equations but do not occur in nature.

The energy transfer in epola waves is described by propagation of half-wave bulk deformation clusters, and of photons representing the per-particle energy in the cluster. The analogy between acoustic and electromagnetic waves is deepened and widened, as well as the phonon-photon analogy. This enabled the derivation of Planck's Law, which was postulated in 1900 and remained unexplained since.

The de Broglie "waves of matter" are shown to be real electromagnetic waves, caused in the epola by the motion of nuclear particles. The de Broglie waves, accompanying the motion of nuclear particles in the epola, propagate with the velocity of light and pre-form the epola for the motion. Hence the epola becomes vacuum-transparent for particles moving much slower than the accompanying wave.

To establish the epola model, we had to disprove two concepts, based on our most natural but erroneous perceptions: that of dense and continuous atomic matter, and that of the emptiness of space. The "dense and continuous" fiction we replaced with the experimentally proven (by Rutherford) space-like emptiness and incredible discreteness of atomic matter. The "empty space" fiction we replaced by the rare, widely meshed electron positron lattice. The penetrability of space to atomic matter results then from the fact that both space and atomic matter consist of nothing but nuclear particles, positioned far apart from one another.

Thanks to this, we could explain the results of the Michelson-Morley experiments without giving-in to the unproven non-physical requests of relativity. Thus, we rehabilitated our natural three-dimensional space and the constant rate of flow of the independent time. We restored Newton's

definition of mass as quantity of matter, and the Law of Mass Conservation, "the most elaborately proven law of physics and chemistry."

We present the 3K radiation of our skies as the thermal radiation of the epola, due to the random vibrations of its particles. The Hubble-Humason redshifts in the spectra of galaxies are mostly due to non-linear absorption of light and to the gravitational distortion of the epola near massive stars, and not much to the Doppler effect. Hence, not everything is running away from us, and the universe is not necessarily exploding.

We dismiss the postulated universal constancy of the vacuum light-velocity. Shown to be the velocity of bulk deformation waves in the epola, the light velocity is determined by epola conditions in the region of propagation. Entering any epola region, light propagates with velocity fixed by the physical conditions in this region. Light does not "remember" its velocity in regions where it was emitted and had to pass. Everywhere in "our" wide region of space, and around all our measuring apparatuses, the conditions in the epola are the same, so that the measured velocity of light is the same, too. However this particular sameness or constancy of light velocity is limited to **our** space, to our region of the epola.

We also dismiss the postulated universal validity of physical laws and magnitudes established in our backyard. Such local findings may possibly be useful and applicable in other regions, but the *a priori* tyrannic demand of their universal validity is rejected. We thus restore the natural rights of all autonomous regions of the universe to manage their affairs according to their local conditions and legislation.

In the last Sections of the book we fantasized about possible ways in which different kinds of matter could be created by natural processes in the electron-positron lattice. But natural physics is altogether very prosaic with the epola presentations in it. It introduces, restores, and enforces strict physical rules, language, and thinking. It eliminates the so exciting time machines, star wars, the shrinking and blowing up of kids, travel between stars, galaxies, or back and forth in history. With the disproof of the runaway interpretation of nebular redshifts, and with the reversal of the 3K "background" radiation into the "foreground" radiation of the epola in front of us, natural physics turns the mathematically so fruitful Big Bang theory into just one more exciting type of science fiction.