

How Homo-sapiens began our journeys on the Earth?

Abstract

We provide a “reader digest” version about the life forms evolved on the Earth and wish to emigrant to the other planet. E.g. Moon, Mars. First of all, the enormous gravitational force attracted two huge massive black holes (because photons could not be escaped) into a big bang collision circa 13.8 billion years (estimated by the background radiation 30K). It has produced the spiral shape Milky Way (due to the conservation of angular momentum). The Milky Way is filled with stars and planets, according to 2020 Nobel Prizes in Physics by Roger Penrose (Oxford) and Andrea Ghez (UCLA), as well as Reinhard Genzel (Max-Planck) based on the NSF NASA supported Laser Interference Gravitation-wave Observation (LIGO) experiments (operated by MIT & Caltech). We wish to answer how we began our life journeys on the Earth. Burning hydrogen's became the water on almost all the planets. The Sun fused about 13 helium atoms to the heavy element irons and ejected out and captured by the bigger and closer Earth than the Mars. Then the Earth core fission some iron isotopes generated spinning current produced kilo-Tesla magnetic field which has warded off the constant bombardment of solar flares burning off water from the Earth. The water interacted with other chemical element Nitrogen and Carbon to build about 20 amino acids to proteins for regenerative beings. The reproduction is made of billions twisted pairs and spooling winding together into DNA genes in each cell with dozen co-evolved partners Mitochondria with its own DNA into reproductive life.

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Since we are emulating human creativity by bionics and biomechanics, we must capture besides Artificial Intelligence the origin of human beings natural intelligence. We cannot just accept the Bible Genesis explanation; we wish to follow the creation of the rest universe, esp. Milky Way & solar system 8 planets over 13.8 billion years ago (cf. Figure 1).

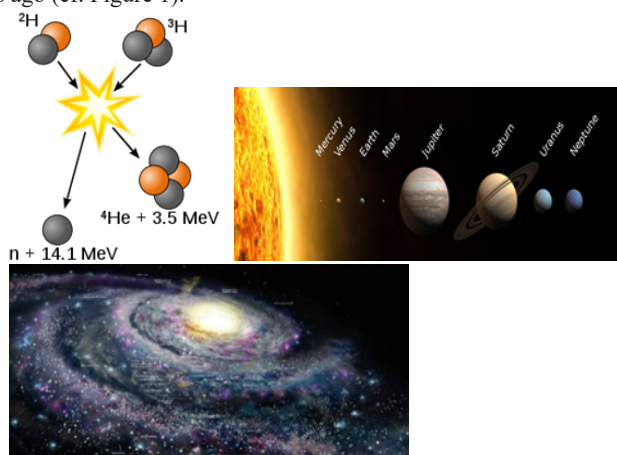


Figure 1 (a) Power of Sun from the fusion 2 hydrogen's (1 Proton, 1 Neutron) into Helium with excess mass and $E=mc^2$ (2 protons 2 neutrons); (b) Sun (left), 8 planets: Mercury, Venus, Earth (& moon), Mars, Jupiter, Saturn, Uranus, Neptune (as well as dwarf Planet Pluto; and other comet, meteorites. (c) Milky Way Not in scale.



Roger Penrose



Andrea Ghez



Reinhard Genzel



Stephen Hawkins

Figure 2 Nobel Laureates in Physics 2020 for proven and measured two colliding Black Holes in the Center of Milky Way. (a) Roger Penrose (Oxford); (b) Andrea Ghez (UCLA), and (c) Reinhard Genzel (Max-Planck). (d) Late Stephen Hawkins suggested light fluctuation quantum effect might make a smaller black hole be easily detectable.

The Einstein Field Equation (EFE) succinctly summarized 10 degree of freedom as follows (1). Isaac Newtonian gravity; (2-5) Clark Maxwell field 2 static space laws: Carl F. Gauss electrostatic & Jean-Baptiste Biot and Félix Savart magnetostatic law, as well as 2 dynamics cross-over temporal laws that Michael Faraday showed the electric current generating the magnetic field & André-Marie Ampère law showed the inverse that the moving magnetic field generating electricity; Clark Maxwell systematically put all in the same notation and units and discovered the missing a dielectric displacement current in a capacitor; (6) Lorentz space-time transform of Maxwell field equations involving the quadratic ratio of the source motion velocity v with respect to speed of light c_0 ; (7) Einstein mass-energy equivalence (where Einstein has deliberately dropped the lower integration constants to “Keep it simple, but not any simpler,” Albert Einstein Motto); (8) Schrodinger & Heisenberg Quantum Mechanics asserted the stable orbits without radiation; (9) Strong Yukawa Nuclear Potential with inverse divergence at the origin; (10) Fermi weak Neutrino existence to be necessarily to conserve the angular momentum. The mathematics Lorentz transform used in EFE has the intrinsic Singularity \Rightarrow Big Bang

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = \frac{8\pi G}{C^4} T_{\mu\nu}; \quad \frac{1}{\sqrt{1-\frac{v^2}{c_o^2}}} \rightarrow \infty; \text{if } v \rightarrow c_o \quad \text{Eq.(1a \& 1b)}$$

Among Einstein Field Equations, the necessary divergence condition indicates “there is a plenty room at the bottom,” said in 1959 by Nobel Laureate Richard Feynman. The microscopically bottom might account for the space-time equivalence Lorentz transform, that must include the mesoscopic condensed-matter and nano-technology. We assert that the bottom might imply the necessary divergence at the origin for Big-Bang that has generated all the atomic nuclear elements that can be found in our known atomic periodic table. Now we return to the macroscopically possible reason why the Earth became so special among all 8 Planets of Solar System, gained those life-supporting resources, e.g. water, amino acids, etc. The critical fact is that the sun further fusion of 13 helium He_4^{56} plus neutrons into the nuclei iron Fe_{26}^{56} indicating atomic number 56 and proton 26 that generated the magnetic fields. In order to make the point that the Sun magnetic field by NASA GSFC on 2013 June 1 on Figure 3 (a) proved that the Earth Magnetic Field came from the Sun.

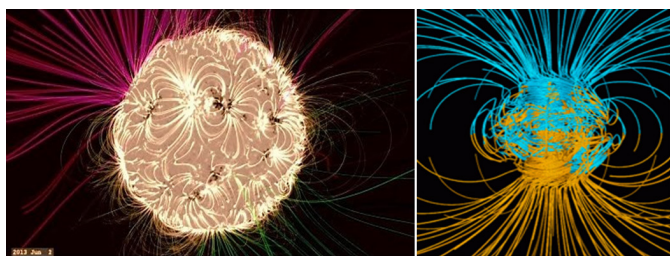
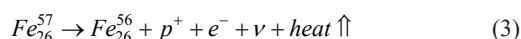


Figure 3 (a) Sun Magnetic field (NASA GSFC, 2013 June 1) simulated (b) the Earth Magnetic Field (noaa.gov).

The specialty of the Earth is due to (i) the size of the Earth which is bigger than the Mars and the Earth satellite moon, and (ii) the location of the Earth which is close enough to the Sun to inherit the further fusion.

We already know that” 2 Hydrogen’s are fused to the Helium” generating the enormous heat in the solar fusions, and furthermore the heat can fuse more Helium’s and with more neutrons Fe_{26}^{56+59} into the irons. The imbalance of 13 helium’s ($2 \times 13 = 26$ protons) with 1~3 more neutrons will be unstable to generate continuously the fission heat inside the big Earth core melting consequently the outer-core iron. According to the aforementioned Faraday law, the spinning Earth supported the electronics of melted irons into the flowing currents around the North-South spinning axis generated the magnetic fields indicated by NOAA modeling and simulation. This crucial magnetic field can ward off the enormous solar fusion charged particles bombardment to bypass the Earth atmosphere without burning off the water resource supporting life on the Earth.

Some iron isotopes: Fe_{26}^{57} , Fe_{26}^{58} , etc. that will decay generating enormous heat. That’s how the earth core becomes molten iron inner core and the rotation of electrons Faraday’s law generating the magnetic field to ward off solar fares bombardment, to keep water on the Earth for lives. The magnetic fields on the Earth are not *found* on Mars or Moon, *where* all the water and other life supporting will be burn out by daily solar flares. Note that the rare element Gold has 79 proton’s, because it needs at least 39 Helium’s with 78 protons and one extra hydrogen.

The water interacted with other chemical element Nitrogen and Carbon to build about 20 amino acids to proteins for regenerative beings Figure 4.

Amino Acid Structure

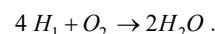
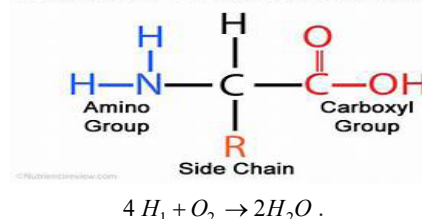


Figure 4 (a) Burning hydrogen’s into water, (b) the water combined further with Carbon (C) & Nitrogen (N) atoms to form 20 different organic molecules called amino acids ($-NH_2$), in terms of different kinds side chains to make up 4 basic building blocks of the reproductive protein of the plants and animals on the Earth.

The reproduction life is made through with billions twisted pairs Histone spooling winding & Methylation (CH_3) labeling together to form DNA genes (A-T, G-C chromosomes). Homo-sapiens cell co-evolved with the power-production partner Mitochondria with its own gene together into reproductive life forms. According to modified Darwin “fittest survival” theory, the double-helix Chromosome made of genetic DNA material requires furthermore Epi-genetic (Greek: outside) to evolved from environmental factors.³

Our co-evolution partner Mitochondria has circular genomes (maternally inherited) of the bacteria that were engulfed by the early ancestors of today’s eukaryotic cells Figure 5. Power efficiency of Mitochondria allows life forms to build 3-D sizes. Genomes and Phonemes evolution form homo-sapiens with bigger brains, constant body temperature in homeostasis, and can stand up with red-color detection capability with the rapid power of pairs eyes processing (agreed, signal, disagree, noise) to lead other domesticated animals for food gathering and cultivation. That’s why Gold became anonymous credit exchanges on the Earth.

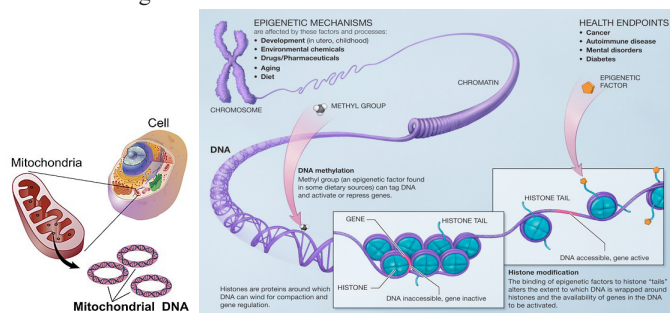


Figure 5 (a) Mitochondria and (b) Genome and Phenome (Epigenetics).¹

In conclusion, we know after the Big Bang that not all mass are make the atomic orbits as listed in periodic table called light-emission matter while the majority of mass about 70% have not orbit called the dark matter. the mankind should be all educated in science & technology as well as culture by all the annually Nobel Prizes, esp. 2020 Physics for Big Bang Universe Birth, that seems to be missing the balance ecologically the sojourn of homo-sapiens on the Earth. Our byproduct implicated some reasons why there might not to have our kind of life on the other planets. One of the main logic is other planet is lacking of water protected by iron magnetic fields to ward off solar flare burning out the water solvent. A newly discovered direct generating of the magnetic field is known as “Microtube Implosion”(MI), which could make it possible to generate magnetic

fields 1000 times stronger than any yet seen in the laboratory. According to the researchers who developed it at Japan's Osaka University,⁴ the new method could be used to generate super-strong magnetic fields for fundamental research in fields such as materials science, quantum electrodynamics and astrophysics.

Instead following the traditional thinking applying electrical power fusion plants, we must avoid the enormous payloads shipment in 7 month trip to Mars. Thus, to apply MI to generate local Mag Magnetic fields in Mars, we suggest a space-time optimization lab test on Earth for NASA Labs.

Here is a sketch of space wiring optimization with three sub-problems in space and time to be done on the Earth:

Answer: Given a constant area $A = 4\pi R^2$ the optimum volume is known to Euclidian a spherical ball called Martian Dome Hotel:

$$V = \frac{4\pi}{3} R^3 .$$

Two more questions remain to be done:

#2 what is the shortest electric wire diagram to cover spherical surface. It might be the baseball seam on a ball, say baseball coils (TBD). This brings us to the time domain, namely how to sustain a constant micro-tube implosion to generate a steady magnetic field on Mars (in order to ward off continuous solar flares).

#3: Time Domain: Magnetic Storage? We need to store the Mag Tesla magnetic field in a magnetic storage. However, the electric charge capacitor is for charge monopoles. We have magnetic dipoles and thus magnetic field quadruple storage. This storage may be constructed, as if to reverse the magnetic field to generate the electric current and the limited current flow back to Faraday current coils to reproduce the steady magnetic field, cf. Magneto Dome Astronaut Hotels Martian Sites Figure 6.

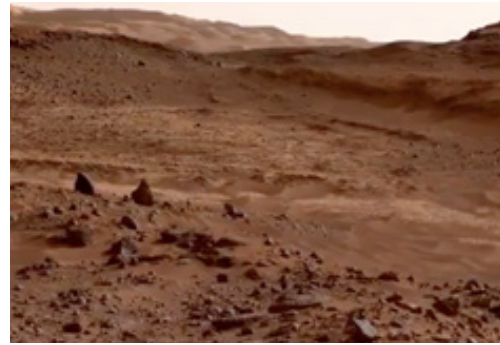


Figure 6 Magneto dome martian astronauts hotels sites.

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Conflicts of interest

There are no conflicts of interest.

References

1. Wikipedia image credited to *Smithsonian library* about Planet.
2. Nobel Foundation 2020 Physics.
3. A Scientific Illustration of How Epigenetic Mechanisms Can Affect Health. *Epigenomics*. 2018.
4. Microtube implosions could produce megatesla magnetic fields. *Plasma physics*. 2020.
5. Roger Penrose, Gravitational collapse and space-time singularities. *Phys Rev Lett*. 1965;14(3):57–59.