European Journal of Applied Physics
Vol 6 | Issue 5 | September 2024
ISSN 2684-4451

RESEARCH ARTICLE

Decomposition of PFAS and Synthesis of BC8 Super-Diamond: Rotations of Electromagnetic Waves for Novel Chemical Dynamics

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ABSTRACT

A new theory is given for the decomposition of PFAS and the formation of BC8 Super-diamond with ^{13}C isotope by application of RBL's rotating magnetic field, neutrinos and/or antineutrinos and static magnetic field for stimulating nuclei having nonzero nuclear magnetic moments (NMMs). The induced NMMs are proposed more readily in the ^{19}F of PFAS due to the large mass defect of ^{19}F and the many C-F bonds per molecule. The super-diamond with ^{13}C isotope is reasoned to form with its body center cubic lattice with central 13-carbon atom per cube due to the rotating magnetic field, neutrinos and/or antineutrinos and resulting internal induced sp^3 hybridization with more efficiency for the applied external pressure and internal pressure by ^{13}C isotope to be better used to compress the resulting sp^3 carbon atoms to BC8 super-diamond. The author invented the use of rotating electromagnetic, neutrino and/or antineutrino and magnetic fields to affect chemical dynamics in 2000-07. The author (RBL) thereby here reports the theory and discovery of unusual and large interactions of highly, energetic dynamical hydrogen bonds with neutrinos and antineutrinos.

Keywords: BC8 Super-Diamond, Chemical Dynamics, Nuclear Magnetic Moments, PFAS.

Submitted: April 15, 2024
Published: September 12, 2024

10.24018/ejphysics.2024.6.5.314

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1. Introduction

Scientists are currently perplexed concerning the execution of two important chemical reactions: the decomposition of PFAS and the formation of BC8 Super-Diamond. Both reactions involve sp^3 C-C lattice. The author (Reginald B. Little) has previously presented novel chemical reaction dynamics concerning such sp^3 lattice decomposition and formation [1]. The author has introduced the use of strong static and dynamic magnetic fields for inducing the rehybridization for forming sp^3 C for a condensing diamond under low pressures and under high pressures and high-temperature conditions [1]. The author invented the use of rotating electromagnetic and magnetic fields for affecting chemical dynamics in general and carbon-carbon bonding specifically in 2000. Such synthesis involved the strong magnetic fields creating and stabilizing sp^3 carbon atoms for their accumulations for forming C-C sp^3-sp^3 bonds. During such a process, the formation of sp^3-sp^3 C-C bonds involved decompositions of C-H sp^3-s bonds. The author introduced the coupling of the sp^3-s C-H bond decomposition reactions to the sp^3-sp^3 carbon-carbon bond forming reactions by either the applied magnetic field or intrinsically by internal magnetization of the systems by permanent and/or induced nuclear magnetic moments (NMMs) and/or nuclear spins including neutrinos and antineutrinos. Such magnetic coupling was discovered by the author to reduce the need for huge pressures for a greater probability of many C-C collisions for forming the multiple C-C sp^3-sp^3 bonds.

The issues involved with decomposing PFAS are similar to the issues of decomposing CH_4 and fixing C into sp^3 bonds of diamond. The PFAS has multiple C-F strong sp^3-sp^3 bonds per molecule [2]. The methane has four C-H sp^3-s bonds. The H has positive NMM just as the F (fluorine) has positive NMM. However, the C-H bonds are not as polar as the C-F bonds. The C-F bonds are some of the strongest C bonds. The symmetries about the C-H and C-F bonds in the alkyl substrates are such that the dipole moments of the polar bonds cancel. But the author here introduces new dynamics through his theory of internal moments by nuclear pressures and neutrinos and antineutrinos that can create momentary net molecular dipoles that do not cancel. According to the authors' theory, such momentary net molecular dipoles induce the decomposition of the CH_4 and the PFAS. The author here develops more rotating magnetic fields [3] and rotating electromagnetic fields for inducing internal bond dipoles within CH_4 and PFAS for inducing such decompositions of CH_4 and a new mechanism for decomposing PFAS. The author invented the use of rotating electromagnetic and magnetic fields to affect chemical dynamics in 2000.

The author and a group in Sweden [4] recently discovered rotating electromagnetic waves can induce molecular magnetism in molecules [3]. Also, recently a different group introduced using rotating laser electromagnetic fields for directly exciting nuclei of some molecules [5]. It has been known that laser-plasma excited nuclei [6]. The author proposed in 2004 that laser-plasma of H-CH_4 plasma excites H and magnetizes CH_4 and radicals for coupling to the diamond growth edge for single crystal diamond growth. The author in 2004 proposed that the nuclei of protons in such plasma by their NMMs are stimulated to induce magnetic fields of the plasma forming the diamond. He also proposed neutrons may release magnetic fields for affecting plasma synthesis [6]. Researchers have recently after the author noted that such laser-excited plasma may directly involve exciting nuclei. The plasma may be producing rotating magnetic fields to excite the nuclei. The author notes here the opposite is also occurring the nuclei in the plasma may be emitting rotating electromagnetic fields. Thereby here the author extends such rotating magnetic fields to change pressure-temperature conditions for forming BC8 super-diamond and the author introduces the use of ^{13}C for the extra neutron of ^{13}C beyond ^{12}C to release more rotating electromagnetic fields and neutrinos and/or antineutrinos to couple the nuclei and electrons of the ^{13}C for their crystallizing the BC8 super-diamond structure in ways the ^{12}C cannot.

The author further notes the use of such rotating magnetic fields in the internal metabolic fields in humans and animal models for inducing similar decomposition and chemical dynamics between PFAS and the proteins, carbohydrates and/or nucleic acids they are intermolecularly interacting with in vivo. The author notes that the rotating magnetic fields just as with methane couple with the nuclei in irregular ways of ^{19}F of the many C-F bonds in PFAS and the many ^{14}N, ^{1}H and ^{31}P in the biomolecules for by the author's mechanism inducing decomposition of the PFAS in a new way as here invented by the author and for inducing chemical reaction of the PFAS with the biomolecules that it is intermolecularly interacting. Such will decompose the trace amount of PFAS in the human body and prevent the trace amount of PFAS from continuously interacting with proteins in a forever way to physicochemically induce by such intermolecular interactions altered metabolism to forever transform the healthy cells to cancer cells by the author's theory. The author introduces such a momentary exposure to rotating X-rays to chemically react the tiny amounts of PFAS with intermolecular bonded biomolecules to end the forever chemical trace in the body.

2. Method

The method of the author's theory is to develop animal studies whereby the animals are exposed to forever chemicals or use animals like fish that have already been exposed to forever chemicals and perform mass spectral analyses on the tissue for determining the level of forever chemicals and isotopic ratios. The animal model would be exposed to the rotating X-ray and other electromagnetic fields and static magnetic fields for chemically transforming the PFAS in vivo. The X-ray-exposed tissue is then analyzed by mass spectroscopy to determine the new composition of the PFAS after X-ray exposure.

The method of the author's theory is developed by using rotating X-rays on the high-pressure high-temperature process for forming diamond. In 2005, the author previously proposed using X-rays but not rotating X-rays [7]. The author here proposes using ^{13}C isotope or ^{12}C enriched carbon for forming the BC8 super-diamond. The author further proposes applying the strong static magnetic field with the rotating X-rays and neutrinos and/or antineutrinos for externally stimulating the ^{13}C isotopes to assist the 13-carbon transforming to BC8 Super-diamond. The author expects the rotating magnetic field and neutrinos and/or antineutrinos will induce easier transformation from cubic sp^3 diamond bonds to sp^3 body-centered cubic diamond lattice with carbon atoms at the center.

3. Results

On the basis of the synthesis of the diamond using pure ^{13}C or carbon enriched with ^{13}C in the rotating X-rays and electromagnetic fields, the author expects that the rehybridization of the diamond will be more efficient under the current regime of increasing the pressure and increasing the temperature so that the cubic diamond lattice will give way to the BC8 super-diamond lattice with body centered cubic symmetry having carbon atom in the center of the cube. Such conditions of using rotating electromagnetic fields and ^{13}C isotopes will entangle the ^{13}C isotopes more intimately from the atomic down to the nuclei for stimulating the denser crystallization of many nuclei to the BC8 structure by the author's theory. The result should involve the ability to grow bulk amounts of such BC8 super-diamond with ^{13}C isotopes due to the applied dynamic rotating magnetic field and neutrinos and/or antineutrinos facilitating the single crystallinity just as the rotating magnetic field has been demonstrated to cause macro single crystalline growth of face-centered cubic diamond.

On the basis of the decomposition of the PFAS in the imposed rotating X-rays and static magnetic field in vivo onto the lab animals, it is expected that the PFAS will be observed in smaller amounts in the tissue samples due to the rotating X-Rays inducing reversible fractional fissing and fusing of the nuclei of nonzero NMMs in the ^{19}F of the PFAS and ^{13}C, ^{14}N, ^{15}N, ^{17}O, ^{18}O, ^{31}P and ^{1}H of the biomolecules for the decomposition and chemical reactions of the F with the C, N, O P and H of the biomolecules to destroy the PFAS in the living organism.

4. DISCUSSION

The formation of the super-diamond is expected as current efforts to form the super-diamond have not used rotating magnetic fields. It is thought that super-diamonds may exist inside the core of some planets [8]. The author notes that this prediction [8] of super-diamond in the core of exo-planets is consistent with the two prior notions of (one) the author here that ^{13}C favoring BC-8 super-diamond by his NMM theory [4], [8] and (two) that the recent notion of other investigators that the formation of carbon-rich exoplanets can occur so far from the stellar center that the temperature may be less than ice temperature of CO and ^{13}CO icing enriches the interior of the forming exoplanet [9]. Thereby the carbon-rich exoplanets are reasoned to be intrinsically enriched with ^{13}C so the core is likely as the author determines here nucleated in ^{13}C enriched media. Such ^{13}C media is determined by the author's theory to undergo collisional excitements for inducing release of rotating electromagnetic fields, NMMs and neutrinos and/or antineutrinos that entangle surrounding ^{13}C atoms for collective condensations of many ^{13}C atoms into BC8 growth. The ^{13}C isotope is proposed by the author's theory to manifest more tightly binding of the valance electron pairs by pulling closer the electron radicals toward the 13 carbon nuclei due to its positive NMM. ^{12}C has zero NMM and does not pull its valence electrons as close to its nucleus as ^{13}C does to the author's theory. Such greater proximity of valence electrons toward ^{13}C nuclei relative to ^{12}C nuclei is further reasoned by the author to promote ^{13}C forming the denser BC8 super-diamond relative lesser ability of ^{12}C isotope to form super-diamond. On the basis of the isotope effect of heavier isotopes by stronger neutrino and antineutrino interactions the author further notes the possibility of diamond inside the planet Mars being ^{13}C enriched and having superdiamond due to greater neutrino and antineutrino flux due to proximity to sun. The author notes that such ^{13}C enriched BC8 superdiamond by stronger neutro interactions and ^{13}C isotope effect from ^{13}CO icing on exoplanets and ^{13}C isotope effect in forming superdiamond is a basis for the author predicting isotope enrichment (over millions of years) of ^{17}O and ^{18}O in water and ice and ^{15}N in nitrates in the Antarctica's ice with ^{1}H in the ice of Antarctica and these isotopes of ^{15}N, ^{17}O and ^{18}O in Antarctica's ice by their negative NMMs and induced nuclear spins more strongly interacting fractionally and reversibly with cosmic and solar neutrinos for causing by enhanced neutrino oscillations by such isotope effects the energetic neutrinos observed recently [10] in the ICECube and ANITA's anomalous neutrino events. The author (RBL) thereby here reports the theory and discovery of unusual and large interactions of highly, energetic dynamical hydrogen bonds with neutrinos and antineutrinos.

It is important to note further that consistent with the author's theory, the formation of such super-diamonds inside these planets involves the magnetic field and rotating magnetic fields of the planetary cores. The formation of the diamond by the author's theory is further rationalized by the rotating magnetic field from the nuclei of the nonzero NMMs that the C and H will be excited so as to induce the release and/or absorption of strong magnetic fields from the nuclei for nuclear pressures and neutrinos and/or antineutrinos relativistically for inducing the sp^3 rehybridizations of the carbon atoms for super-diamond formations. Such stimulations of the nuclei are expected by the author's theory to induce reversible transmutations of the ^{12}C to ^{12}B (of NMM and spin) and ^{12}N (of NMM and spin) by the absorbed/released neutrinos and/or antineutrinos for assisting the rehybridizations of C atoms for efficient formations of body-centered cubic super-diamond. The author introduced in 2007 that neutrinos and/or antineutrinos from the sun, stars, mature stars in transitions and Origin of the Universe are not neutral to chemistry and biochemistry but act in fractional, reversible ways for fractional weak (force) interactions and fractional beta and inverse beta processes for providing energy, momentum, mass and space/time for activated states of reactions in novel ways as here for BC8 superdiamond synthesis and PFAS decomposition. Such more efficient rehybridizations of the carbon atoms are expected to cause the super-diamond as the super-diamond has a higher density than the face-centered cubic diamond. By the author's theory, the rotating X-Rays are expected to more cause the sp^3 carbon and the pressure is better used to compress the sp^3 carbon atoms to super-diamond rather than the pressure being used to collide the carbon atoms to rehybridize them and more ready trapping in face center cubic lattice. The applied rotating X-rays induce nuclear pressures by the author's theory for the ready existence of sp^3 carbon (as the author demonstrated in 2003 experimentally) and the applied pressure then more efficiently acts to compress existing sp^3 carbon atoms to the BC8 super-diamond.

The decomposition of the PFAS in the rotating magnetic field and neutrinos and/or antineutrinos is also expected to occur in vivo without much effect on the biomolecules. The rotating magnetic field can be tuned to only excite the ^{19}F of multiple C-F bonds per molecule for stronger interactions with the NMMs of atoms of surrounding proteins, nucleic acids, and carbohydrates for inducing decomposition of the PFAS by chemical reactions with the biomolecules intermolecularly bound to the PFAS for eliminating the PFAS from the animal mode and expected decomposition of the PFAS to eliminate it from human bodies. It is expected the rotating and static magnetic fields and rotating electromagnetic waves will stimulate the nuclei of the biomolecules of nonzero NMMs in the ^{19}F of the PFAS and ^{13}C, ^{14}N, ^{15}N, ^{17}O, ^{18}O, ^{31}P and ^{1}H of the biomolecules for producing nuclear pressures and neutrinos and/or antineutrinos and for inducing reversible transmutations of these nuclei by the absorbed/released neutrinos and/or antineutrinos for accelerating the breaking of C-F bonds. The uniqueness of the PFAS in having 8 C-F bonds per molecule creates novel centers for these rotating magnetic fields to create such dense fields released from nuclei to selectively decompose the PFAS with fewer stimulations of proteins, carbohydrates, lipids and nucleic acids. By the author's theory, the relatively larger positive NMM of ^{19}F is expected to facilitate easier selective stimulations of the ^{19}F nuclei by the rotating X-rays. By the author's theory the large positive NMM of ^{19}F (of + NMMs) can explain the PFAS causing cancer as the PFAS more strongly hydrogen bonds ^{15}N (of - NMMs) than ^{14}N (of + NMMs) for depleting ^{15}N in cells to support cancer genesis as recently observed ^{15}N depletion in most types of cancers.

By the author's theory, it is expected here to have larger selective fractional, reversible fissing and fusing of ^{19}F by stronger interactions with surrounding neutrinos and/or antineutrinos due to its relatively large mass defect [11] relative to the elements of life. By the author's theory, the large mass defect of F (as reflected in its atomic weight having with the tenth) with 0.9 amu rather than 0.1, 0.2 or 0.3 amu as the other elements of life (with their smaller mass deficits) is the basis of the relativistic effects of the ^{19}F nuclei releasing/absorbing NMMs, neutrinos and/or antineutrinos and rotating electromagnetic fields for altering interactions of ^{19}F for causing cancer by the many C-F bonds in PFAS. Chlorine is common in the human body as Cl^- ions but Cl^- has a smaller mass defect with the tenth digit of its atomic weight having 0.3 amu so the Cl^- does not as strongly release rotating electromagnetic fields for altering interactions with biomolecules or has a different release for normal rhythms of life. But considering Br and its atomic weight having 0.9 amu at the tenth digit and the consequent large mass deficit in Br as with F. Thereby cancer should be expected with Br. Indeed recent FDA listed substances like brominated vegetable oils as carcinogenic [12]. Although the carcinogenicity is less for BVO than PFAS, the lesser effect of Br mass defect for altering valence electrons and intermolecular interactions for causing cancer (than PFAS) is due to the larger size of the Br atom than F atom as the core electrons shield the valence electrons from nuclear fields that alter the intermolecular interactions. Such shielding effect of core electrons from released magnetic and electromagnetic fields is further proven by considering that although Iodine (I) have a large mass defect with its atomic weight having a tenth digit also with 0.9 for large mass defect, the I is still larger than Br and the larger size of I have the core electrons shielding these effects so Iodine is a nature element of life.

5. Conclusion

The new phenomena of rotating magnetic fields and rotating electromagnetic fields for stimulating nuclei and magnetizing molecules are reasoned here to stimulate nuclei of ^{19}F for inducing the decomposition of PFAS. The nucleosynthesis of ^{19}F in the sun involves neutrinos and/or antineutrinos and may involve these rotating electromagnetic fields [13]. Such rotating electromagnetic fields and neutrinos and/or antineutrinos (from ^{1}H in the sun) were proposed by the author to affect carbon chemistry in 2000-07 where the author proposed rotating direction of electromagnetic fields and neutrinos and/or antineutrinos (deep inside the earth) for affecting hybridization of the condensing carbon chemical bonds [14]. The rotating electromagnetic fields, neutrinos and/or antineutrinos, X-rays and static magnetic fields are also determined here to stimulate ^{13}C isotopes more strongly that ^{12}C isotopes to provide efficient nuclear pressures and strong magnetic fields from nuclei of C and H for rehybridizing carbon to sp^3 for the applied pressure for greater rotating electromagnetic wave release and entanglement of many ^{13}C atoms for denser chemical condensation to BC8 super-diamond and to favor BC8 super-diamond. Therefore the author introduces a new isotope effect (with ^{13}C verses ^{12}C given here) on basis of neutrinos and anti-neutrinos more strongly interacting with isotopes with larger positive and/or negative Nuclear Magnetic Moments (NMMs).

Conflict of Interest

Author declares that there is no conflict of interest.

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