

Conceptualized Fusion Reactor based on Gas Turbine with High Temperature CO₂

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Abstract:- Author discovered the mechanism of Cold fusion that covalent bond compression of D-D transition electron to deep orbit which distance is a few femtometers from the nucleus, which electron density between d-d is so dense that it shields the coulomb repulsive force to cause Fusion, and discovered that nucleus is constituted only by proton and internal electron and neutron is a pair of proton and electron in deep orbit. Dr. Ohmasa claims that his transmutation reactor produce precious metal from base metal, which shows experimentally and author discovered that femto-H₂ fusion to metal cause transmutation, which proves the existence of femto-H₂, and femto-D₂ therefore current nucleus model is probed to be incorrect. Dr. Ohmasa also claims that CO₂ can be reduced by burning with fossil gas fuel mixed with H₂ and O₂, and author hypothesized the cause that compression of C-O bond cause fusion between C and O to be P and Si based on the correct nucleus model and based on author's Cold fusion mechanism of bond compression. Developing this mechanism and hypothesis, I would like to propose the conceptualized fusion reactor based on gas turbine with high temperature CO₂. D-D bond can be compressed by high temperature CO₂ and by the collision of high-speed blades in gas turbine to cause D+D fusion and C+O fusion, which reduce the CO₂ emission. Reactor needs to be cooling to generate power by steam turbine and high-speed blade rotation produce power and causes fusions.

Keywords:- Transmutation, Nucleus Model Femto-H₂, Femto-D₂, Cold Fusion, Gas Turbine.

I. INTRODUCTION

Author discovered the mechanism of Cold Fusion and cause of low reproducibility and low heat generation in D₂O cold fusion, and also discovered that current nucleus model is incorrect. Thus, I would like to summarize my Cold Fusion

mechanism which leads to the conceptual fusion reactor of D+D and C+O in CO₂ to reduce CO₂ emission. It is important to understand the Cold Fusion is caused by bond compression of D-D to generate femto-D₂. If you accept, you have a possibility of further technological innovation in nuclear fusion, and you would admit the incorrect nucleus model. Thus, I hope you should study and understand the mechanism of bond compression.

II. HISTORY OF COLD FUSION

➤ *Incorrect Setting Fleischmann and Pons Experiment in ref[1]*

After Stanley Pons and Martin Fleischmann's sensational announcement about cold fusion in 1989, it was called the "biggest scientific scandal of the 20th century" due to poor reproducibility. They used the electrolyzer in strong alkaline D₂O, incorrectly used negative heating metal. Because OD⁻ concentration is by far higher concentration of D⁺ heating metal needs to be positive in order to load D from OD⁻ into metal by attracting OD⁻ as is ref [1]. Due to incorrect setting heat generation of D₂O Cold Fusion is very low and it takes very long time to load D⁺ into metal, and trigger Cold Fusion. After the development of loading of D₂ gas, Cold fusion's reproducibility became excellent and heat generation became very high.

➤ *Trinng of Cold Fusion is Possible Only for Negative Metal in ref[2]*

Triggering temperature of Cold Fusion is 600~degreeC, it is impossible to trigger in D₂O due to the cooling of metal electrode at the negative potential of metal, insulating film grows on the negative metal and due to the counter electrode is Pt wire, the insulation film becomes striped and there are areas where the metal is exposed, where the current concentrates and generates localized heat, which then triggers cold fusion and spreads throughout the metal. Refer to the Fig.14 in ref [2].

III. MECHANISM OF COLD FUSION

➤ *Expandable T Site*[3][4]

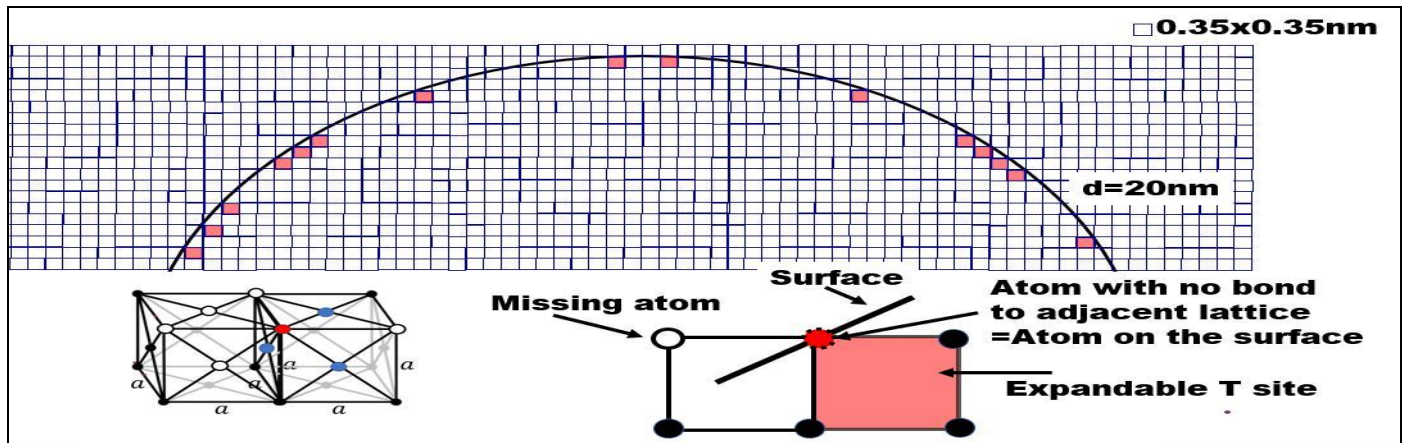


Fig 1 Expandable T Site on the Surface with Nano-Roughness

Author discovered that hydrogen embrittlement is caused by Author's mechanism of Cold Fusion as follows.

➤ *Femto-D₂ at the Expandable T Site*

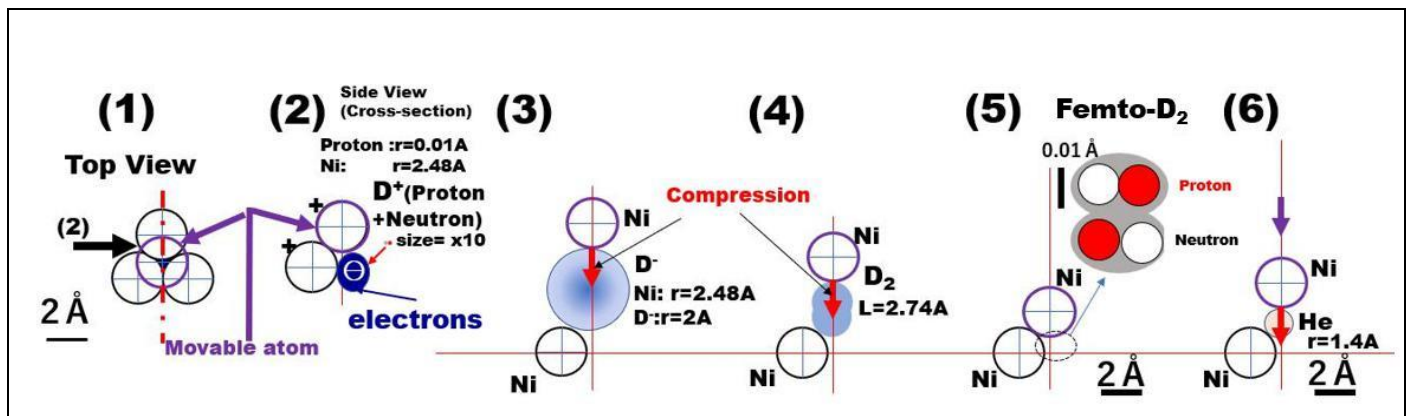


Fig 2 Mechanism of Femto-D₂ Creation in ref [2]

Femto-D₂ can shield the coulomb repulsive force to cause fusion of D+D.

Femto-D₂ was theoretically studied in ref [4]. Cold Fusion is caused by covalent electron which density between-d is so high that it can shield the coulomb repulsive force between d-d as is shown in Fig2(5).

➤ *Femto-H₂ at Expandable T Site*

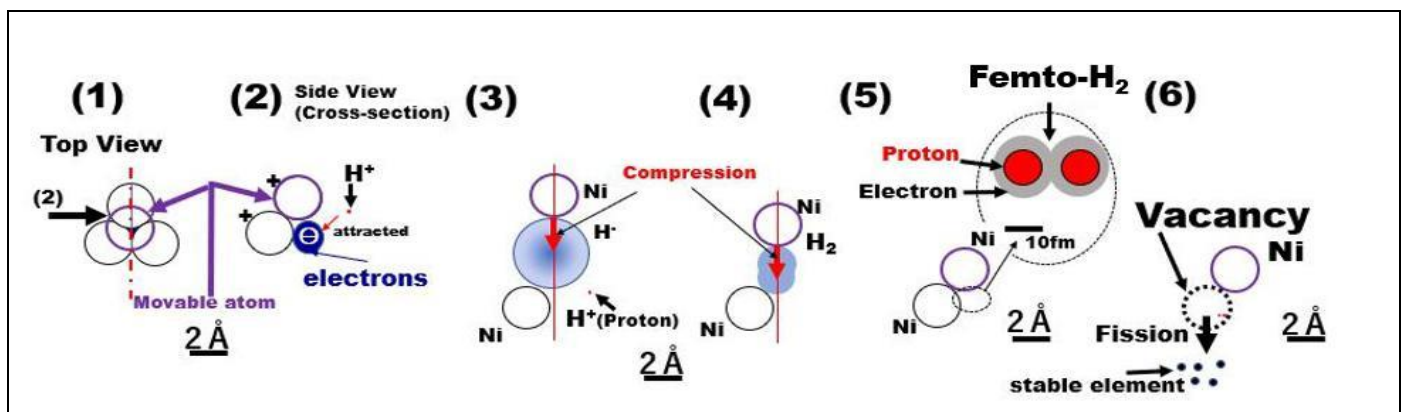


Fig 3 Mechanism of Femto-H₂ Creation in ref [3]

Expansion of H⁻ at expandable T site in Fig.3(3) cause low temperature hydrogen embrittlement and transmutation of metal with femto-H₂ in Fig.3(5)-(6) to cause high temperature hydrogen environmental embrittlement, as is ref [3].

IV. MECHANISM OF TRANSMUTATION BY BOND COMPRESSION

➤ *Small Hydrogen by Compression of H-Bond*

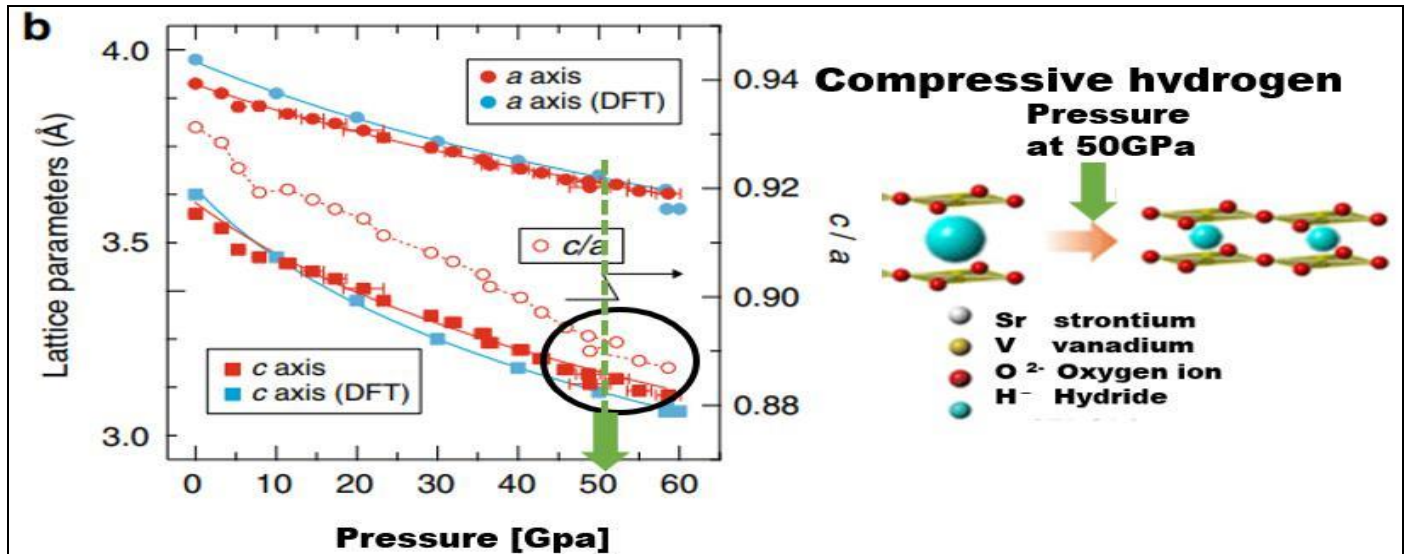


Fig 4 Compressive Hydrogen in ref [5]

This experiment clearly showed that compression of H-V bond transitions H to small-H, which is femto-H with electron deeper than n=1. Thus, compression of bond of gas can have the same transition.

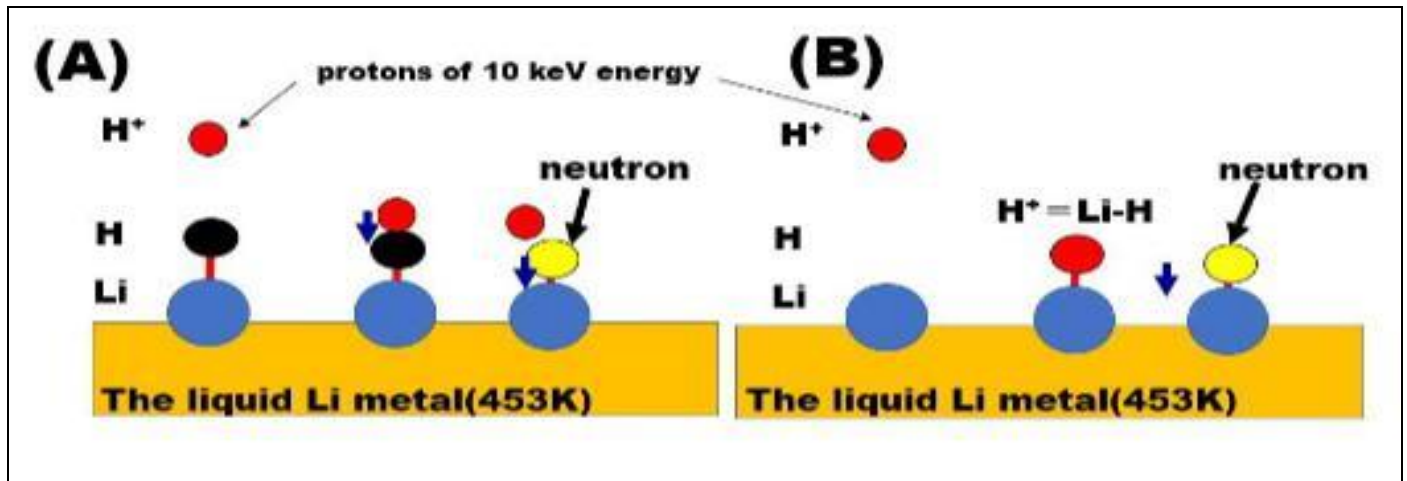


Fig 5 Compressive H-Li Bond to Cause Fusion to Create 3He and 4He in ref [6] and [7].

Bond compression of H-Li can fuse them to be ⁴He and ³He. In ref [6] has many examples of Bond compression to cause nuclear fusion, and also, biological transmutation is caused by the compression of bond in ref [1]. Refer to sec VI in ref[2].

Based on Cold Fusion mechanism shown in sec.II that D₂ in metal transition to femto-D₂, and it can fuse to the nucleus of the target element, and fused nucleus is 2d, charge of d must be 2 because atomic number increase is 4.

V. TRANSMUTATION WITH FEMTO-D₂ SHOWS THAT CURRENT NUCLEUS MODEL IS INCORRECT

➤ *Transmutation Experiment in ref [8]*

Iwamura shows that transmutation experiment with D₂ gas in Pd shows that atomic number increases by 2 in ref [7].

Although it is believed that d is constituted by one proton and one neutron based on current nucleus model, experiments show that d is constituted by two proton and one internal electron.

➤ *Correct Neutron Model and Nucleus Model in ref[9]*

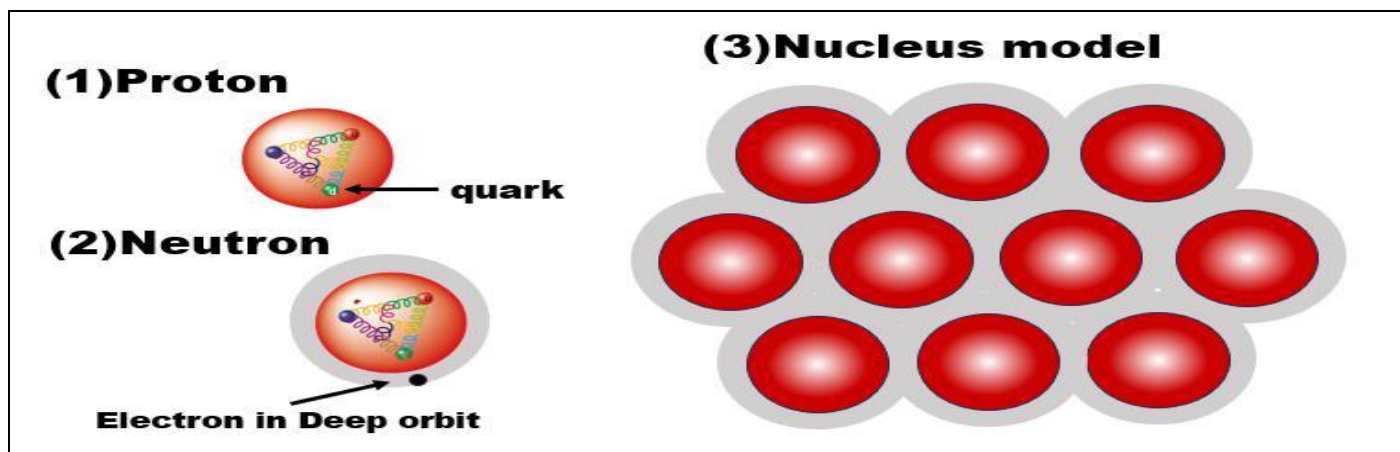


Fig 6 Correct Neutron Model and Nucleus Model in ref [9]

As is discussed in this paper that femto-H₂ exists, thus, the existence of femto-H₂ proves the existence of femto-D₂, and therefore, the existence of femto-D₂ proves that the current nuclear model is incorrect, and correct nucleus model and neutron model are shown in Fig.7.

You should consider that neutron beta decay is more reasonable if the neutron is a pair of a proton and an electron in a deep orbit and broader electron energy distribution during beta decay can be explained by the motion of quarks in proton, which affect the electron energy in deep orbit than n=1, and no neutrino exists in a sense that neutrino-hypo is incorrect in ref [7].

➤ *Femto-H₂ Exists which Proves Femto-D₂ Exists*

Because of inconsistency of transmutation experiments show that d is constituted by two protons, all researchers avoid the discussion of my Cold Fusion Mechanism of bond compression of D-D to transition to femto-D₂.

Since the abundance ratio of deuterium is low and hydrogen is high, thus hydrogen dominates phenomena in nature, author investigated unexplained phenomena related to hydrogen from the perspective of whether femto-H₂ molecules are the cause. and discovered that Dr. Ohmasa's research on transmutation can be caused by femto-H₂ molecules.

Dr. Ohmasa's transmutation reactor in ref [10] uses Pd metal plate to create femto-H₂ to transmute target element of tritium in T₂O, or metal ions in water to generate precious metals. Dr. Ohmasa claims that the transmutation reactor can produce Au and Ag experimentally, and I discovered the mechanism in ref [11]. Gas generated by transmutation reactor with femto-H₂ is so called Brown gas as is in ref [12]. Various terms such as HHO gas, Brown gas, and OHMASA GAS are used interchangeably, but their correct composition has not been proven, so I will publish the Mass histogram in the following report in detail.

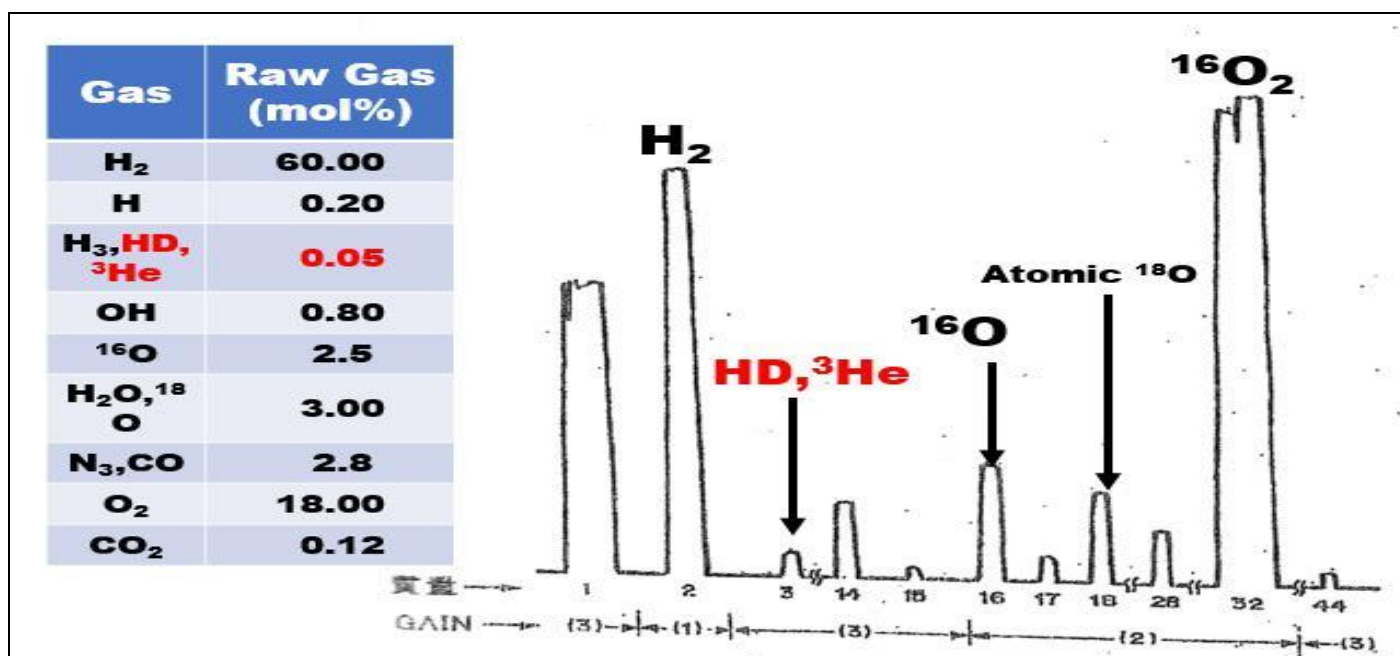
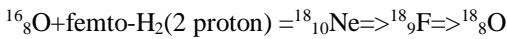


Fig 7 Mass Histogram of Brown Gas Generated by Transmutation Reactor with Femto-H₂ in ref [10].

➤ Fig 7 Clearly Shows the Mass=18, which must be Generated by the following Fusion Reaction.



(=> is electron capture to stabilize nucleus.)

Mass=3 has interfering ions of DH, which need high resolution ICP-MS. Unfortunately, the gas produced by transmutation reactor was not available, which is to be mass analyzed with high resolution ICP-MS.

However, the peak with a mass number of 18 is not the mass number generated by electrolysis, thus, it is certain that femto-H₂ molecule is fused with oxygen-16 to be oxygen-18. Therefore, femto-H₂ exist based on mass=18 of ¹⁸₈O, which probe the existence of femto-H₂ and also of femto-D₂, and which prove that current nucleus model is incorrect in ref [9].

My report in ref [11] also shows that femto-H₂ transmute metal ions to be Au and Ag by adding two protons of femto-H₂. Author thinks that the reports mentioned here are sufficient for the evidence that femto-H₂ exists.

Therefore, author concluded that current nucleus model is incorrect. I will explain the detailed composition analysis of Brown gas and conceptual brown gas generator in the flowing reports.

VI. CONCEPTUALIZED FUSION REACTOR BY BOND COMPRESSION WITH HIGH TEMPERATURE CO₂

➤ Gas Turbine

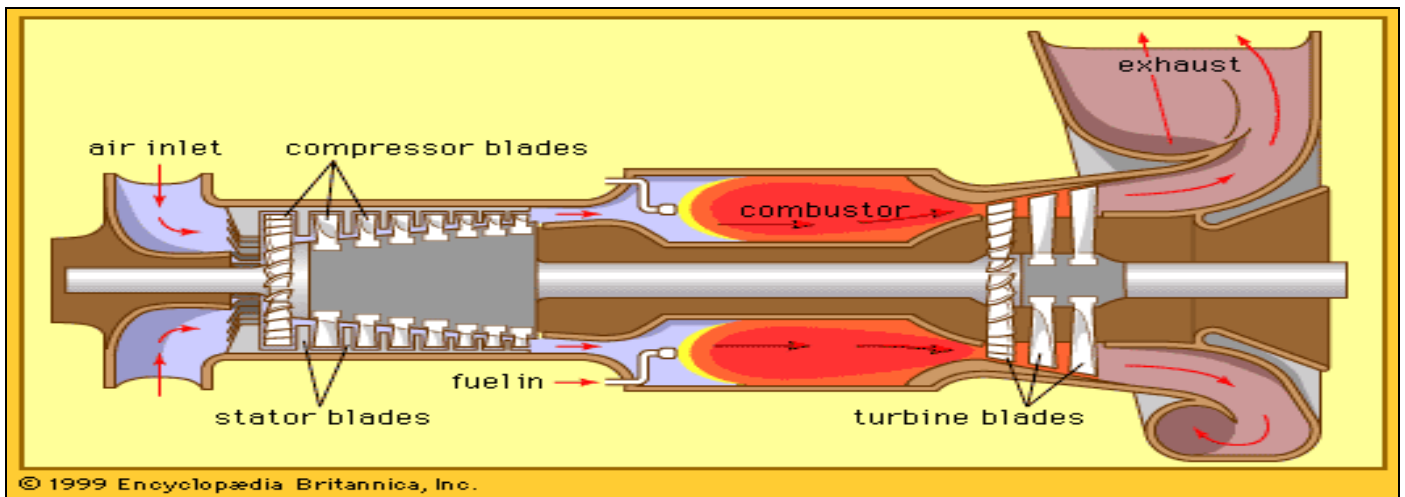


Fig 8 Schematics of Gas Turbine

As is shown in Fig.8, a gas turbine is a type of turbine that uses pressurized gas to spin it in order to generate electricity or provide kinetic energy to an airplane or jet.

inlet temperature is 1400°C~1600°C, and the rotation speed is 10,000~40,000[min^{-1}].

The development target of gas turbine is to have higher combustion temperature and current cutting edge gas turbine

➤ Gas Turbine Combustion with HHO

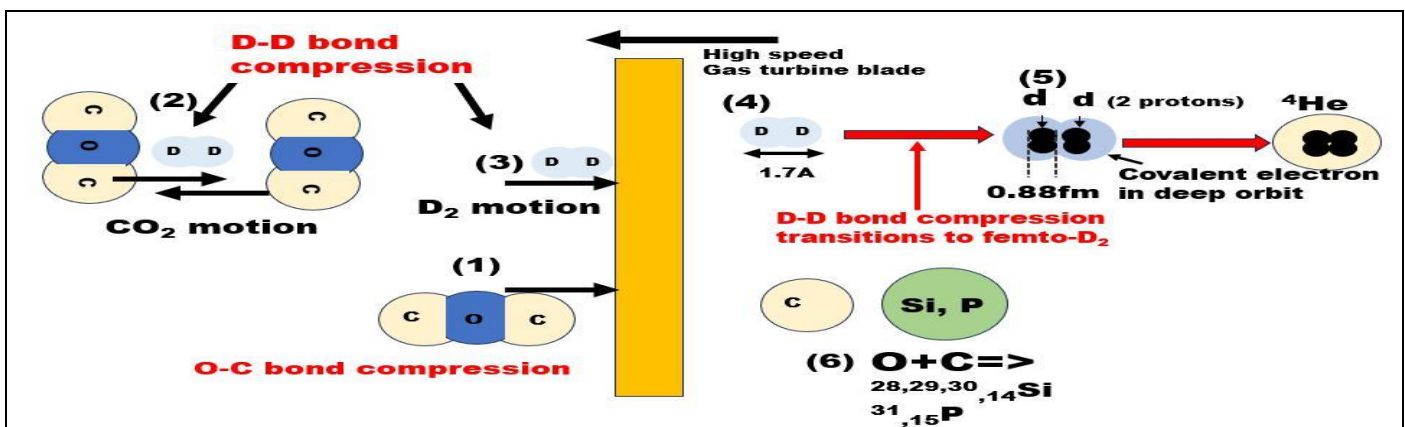


Fig 9 CO₂ Reduction and D+D cold Fusion with High Temperature CO in Gas Turbine

Dr. Ohmasa claims that by mixing HHO gas or OHMASA-GAS with fossil fuel gas, CO₂ emission can be reduced drastically in ref [13],[14]. By mixing O₂ and H₂ with fossil fuel gas, it can be completely burned and the high combustion calories of hydrogen are effectively obtained and resulting in a large energy saving (30-50%), and the temperature of CO₂ can be very high. In such case based on the author's mechanism of Cold Fusion, compression of C-O bond causes their fusion.

As is shown in Fig.8, because the route of CO₂ in gas turbine is very narrow from combustor to exhaust via rotating turbine blades, and because temperature of CO₂ is very high, and because the rotation speed of blade is very high, compressed C-O bond in CO₂ and CO₂ collision onto high-speed blades can cause nuclear fusion between gas atoms (C+O) shown in Fig.9(6) based on the author's Cold Fusion mechanism.

➤ *Estimated Isotopes by Fusion of C and O in CO₂*

It is important to run experiment of generated gas component analysis, thus I estimated the isotope by fusion of C+O. to prove my conceptualized fusion reactor.

• *Here, I Summarize what I Discovered on the Transmutation based on Cold Fusion.*

- ✓ Nucleus is constituted only by protons and internal electrons.
- ✓ Compressing the bonds between elements causes nuclear fusion of those elements.
- ✓ Unstable isotope has the electron capture to stabilize the nucleus; thus, atomic number decreases one by one to reach the stable isotope.

As is shown in Fig.9(1) and (6), because of the high temperature of CO₂, high speed of blades, collision of CO₂ onto blades can compress C-O bond to fuse C and O to be ³¹₁₅P and ^{28,29,30}₁₄Si as explained below.

^{16,17,18}₈O+^{12,13}₆C (the number of protons=12,13; based on correct nucleus model)

=^{28,29,30,31}₂₀Ca=>³¹₁₅P:(=> electron capture)

=^{28,29,30,31}₂₁Sc=>^{28,29,30}₁₄Si:(=> electron capture)

Fusion of C+O in CO₂ can be done with high temperature CO₂ directly into gas turbine.

➤ *Conceptualized Fusion Reactor with High Temperature CO₂ and D₂ in Gas Turbine*

Thus, I would like to propose the conceptualized fusion of D+D as is the mechanism shown in Fig.9(2) and (3). D-D bond can be compressed by high temperature, dense CO₂, as is shown in Fig9(1), and D-D bond can be compressed onto high-speed blades in gas turbine as is shown in Fig.9(3). Generated heat increases the gas temperature. Since the gas temperature becomes very high, it needs to be cooled and a steam turbine is used to generate electricity. High-speed

rotating turbine blades are used for nuclear fusion as well as power generation.

VII. PROPOSITION

➤ *To Gas Turbine Supplier and Fusion Developer*

Currently, as temperature of gas turbine is increasing to improve the combustion efficiency, the CO₂ reduction by C+O fusion is becoming more likely. Thus, Author would like to ask gas turbine supplier to check the amount of CO₂ and mass analysis of exhausted gas by the proposed conceptualized fusion reactor with gas turbine.

If this conceptualized fusion reactor were to be realized, it would have a huge impact on energy industry and the global environment. I do not think Dr. Ohmasa's claim that CO₂ is reduced is probed internally not by other institution, I would like to request gas turbine supplier or fusion developer to prove the conceptualized fusion reactor to see if it is possible.

VIII. SUMMARY

Bond compression of D-D cause Cold Fusion thus by high temperature CO₂ compress D-D bond or collision of D₂ onto high-speed blade in gas turbine compress D-D bond to cause Fusion to generate heat. In case of high temperature CO₂ compress C-O bond to fuse them to be P and Si.

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[International publication date] September 1, 2016 (2016.9.1)
[Publication date] November 30, 2017 (2017.11.30)
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