

Transmutation Based on Cold Fusion Affects the Electrochemical and Biological Experiments

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Abstract:- Cold fusion is caused by the generation of femto-D₂, which electron orbit is deeper than n=1 and electron orbit is at a few femto-meters from the nucleus. Because the electron density between d-d is so dense that it can shield the coulomb repulsive force between d-d to cause cold fusion. femto-D₂ is generated on the surface with nano-roughness of metal with FCC lattice structure, and compression at the reaction site, This mechanism of Cold Fusion elucidates mysterious phenomena involving hydrogen that had previously remained unexplained. For the electrochemistry researcher should understand the mechanism of transmutation with femto-H₂ because it elucidates the mechanism of oxhydroelectric effect, which is caused by the femto-H₂ transmutation of H₂O to generate proton. The researcher on biological study should understand the mechanism of biological transmutation and transmutation by the compressed chemical bond. For example, $^{39}_{19}\text{K}+1\text{p}=\text{}^{40}_{20}\text{Ca}$ by chemical bond compression of H₂O to generate a neutron(femto-hydrogen), and $^{28}_{14}\text{Si}+^{12}_6\text{C}=\text{}^{40}_{20}\text{Ca}$ by chemical bond compression of Si-C. Compression of H₂O can cause the power generation from ambient humidity using protein nanowires by the compression of H₂O to generate protons.

Therefore, I would like to request the electrochemical and biology to mass analyze the water to confirm the transmutation mentioned above.

Because this area of research is new and few researchers on biology and electrochemistry knows the mechanism, Thus I would like to spread this new mechanism of transmutation.

Keywords:- Cold Fusion, Femto-D₂, Femto-H₂ Transmutation, Oxhydroelectric Effect, Biological Transmutation, Protein Nanowire, Brown Gas, Component; Formatting; Style; Styling; Insert.

I. INTRODUCTION

Author discovered the mechanism of Cold Fusion that femto-D₂ causes the coulomb repulsive force shielding to cause fusion because femto-D₂ is smaller molecules of H₂ with covalent electron orbit at a few femto meters from the nucleus.[1]. Author also proposed several transmutation reactors to generate helium-3 and oxygen-18 by the transmutation of H₂O with femto-H₂ generated in the positive metal electrode with FCC lattice.[2],[3],[4].

Because car on the water Water-powered has long been believed to be pseudoscience, but I discovered that this brown gas burning to power the car is a real free-energy and because we should not use the brown gas for commercialization because the energy gain is very small and it has a risk of isotope ratio change due to transmutation of O-16 to O-18 in ref [5], and [6]

Because my cold fusion mechanism proves that nucleus is constituted only by protons and internal electrons, and that neutron is a pair of proton and electron in deep orbit, which are inconsistent with the current standard model of nuclear physics and particle physics in ref [7], and [8], my Cold Fusion Mechanism of femto-D₂ has been ignored by academia and the governments.

I proved that femto-H₂ exists in ref [5] and in ref [6], which proves my Cold Fusion Mechanism of femto-D₂ and also proves that the current nucleus model is incorrect.

Because Cold Fusion Mechanism has also the great impact on electrochemistry and biology study, I would like to inform these academic societies of the Cold Fusion mechanism, which can have an impact on their researches.

II. MECHANISM OF COLD FUSION

A. Expandable T Site on the Surface with Nano-Roughness

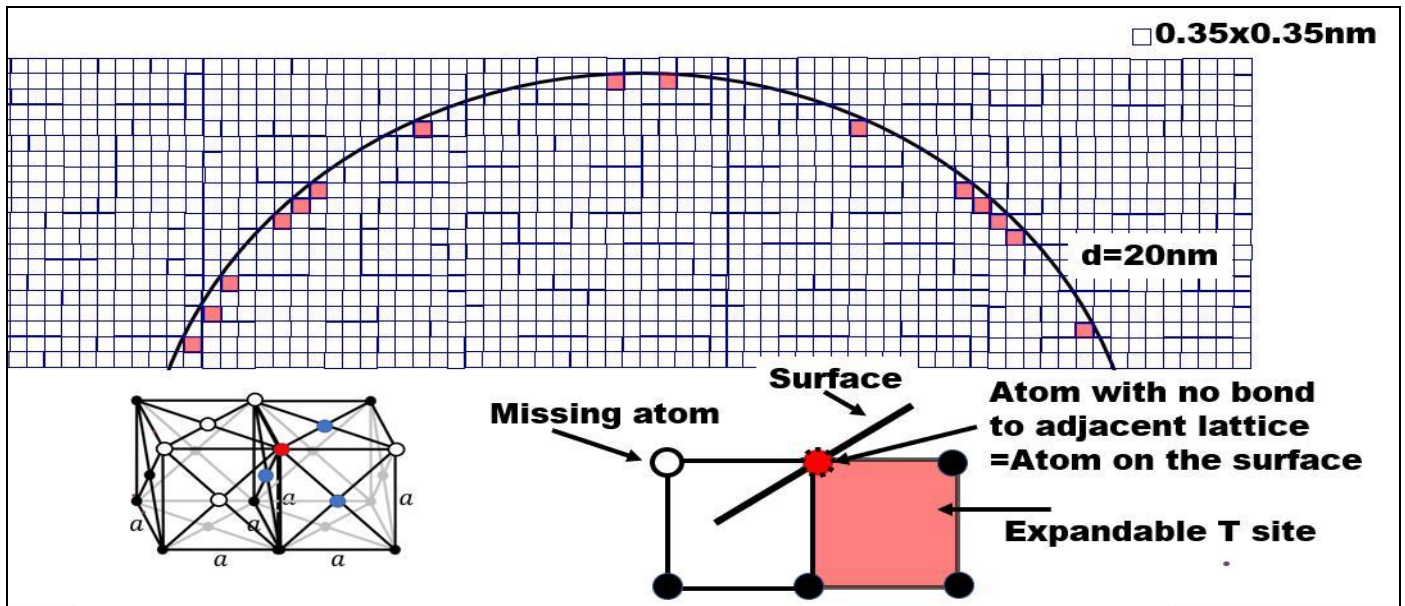


Fig 1: Expandable T Site to Compress D-D Bond to Cause Cold Fusion [7]

Fig.1 shows the expandable T site of Ni with FCC lattice structure. All of the metal causing Cold Fusion has FCC lattice structure, and Cold Fusion occurs on the surface with nano-roughness, Therefore I discovered the mechanism of Cold Fusion based on these features. I draw the cross section around the surface with nano-roughness

shown in Fig.1, which shows that some of the surface T site can have the vertex atom which has no bonding to the adjacent atom shown in colored cell. Thus, such T site can be expanded by entering D^- in the site. I call it expandable T site, which is the reaction site of Cold Fusion.

B. Femto- D_2 Generation in Expandable T Site

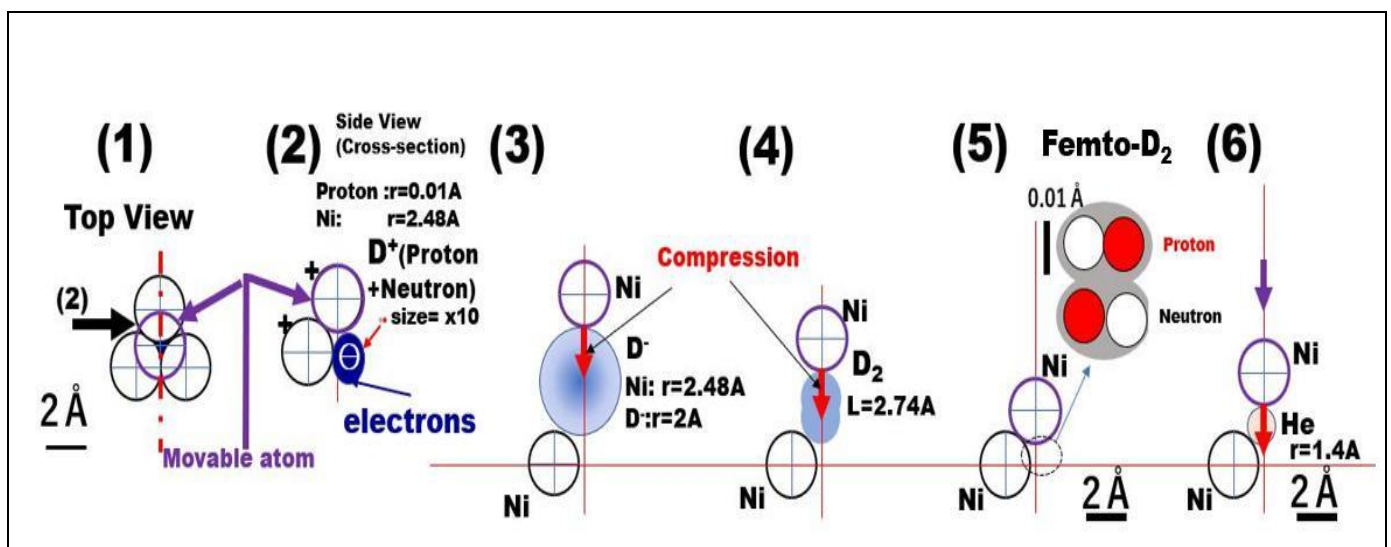


Fig 2: Mechanism of Cold Fusion at Expandable T Site

Because the center at the T site is charged negatively, it attracts D^+ ion, which occupy the reaction site to be D^- . Because the size of D^- is larger than the size of T site, D^- expands the expandable T site. D^- attracts another D^+ , which joins D^- to be D_2 at the expanded T site. By the

compression of D-D chemical bond, D_2 transitions to the femto- D_2 , which electron orbit is deeper than $n=1$ (ground state) explained by the small “hydrogen” and Deep Dirac Level reported in ref [9],[10],[11].

C. Femto-H₂ Generation in Expandable T Site

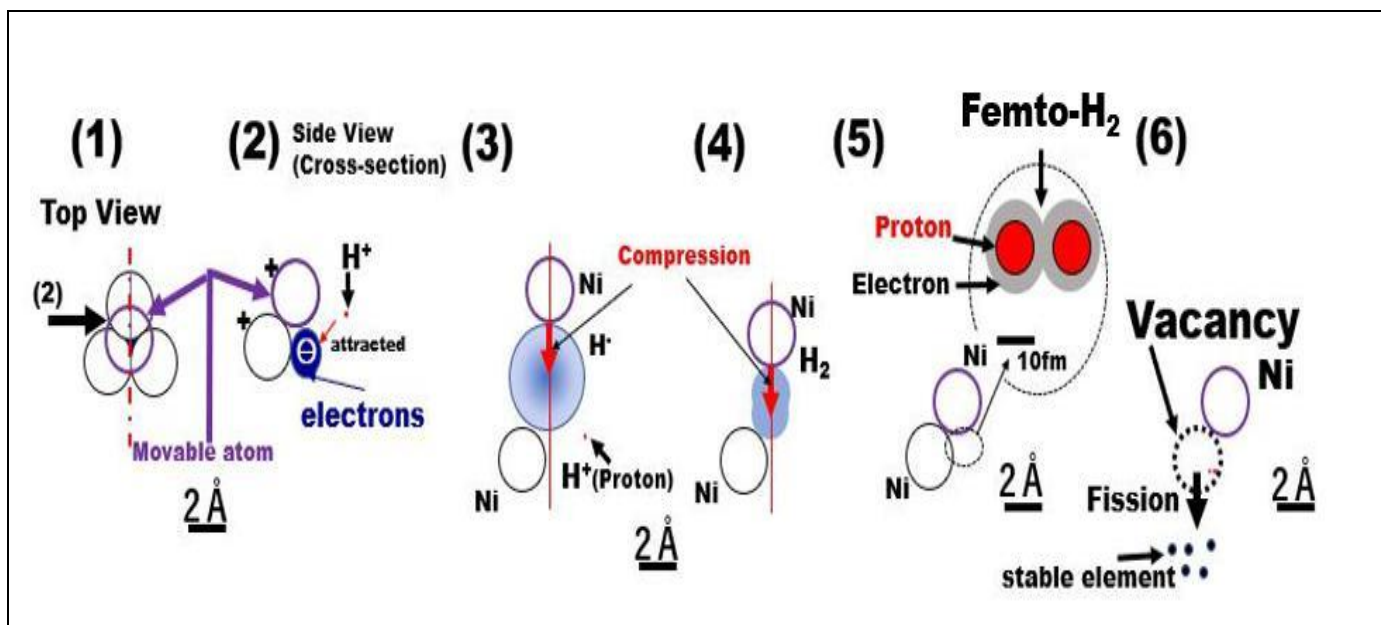


Fig 3: Mechanism of Femto-H₂ Generation at Expandable T Site

Fig 3 shows the case that gas is H₂ in place of D₂. Femto-H₂ is generated in place of femto-D₂, and femto-H₂

is very important for electrochemical study because it transmute H₂O and element in H₂O in ref [2], [5],[6].

III. COLD FUSION BY BOND COMPRESSION

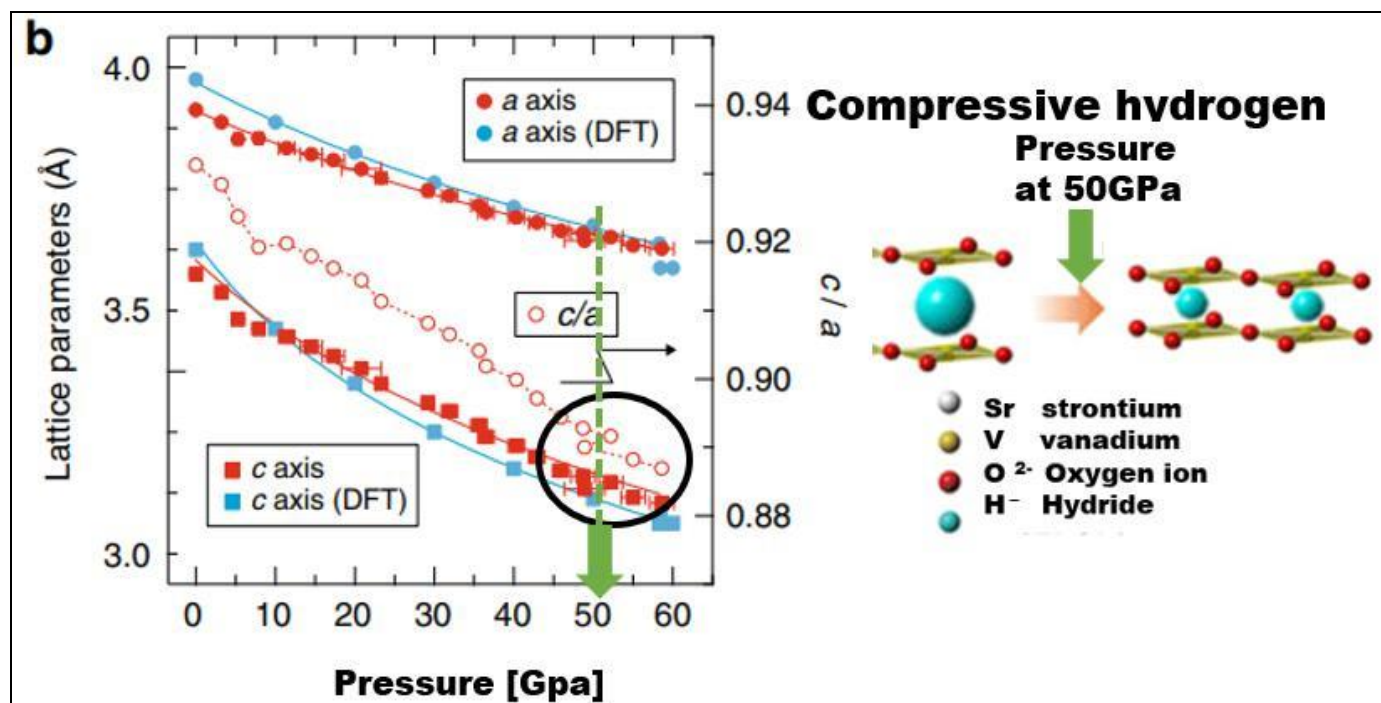


Fig 4: Bond Compression Make Hydrogen Smaller [12]

This study provides direct experimental evidence of the existence of DDL. Compression of hydrogen at around 50GPa cause the transition to the smaller hydrogen with

Deep Dirac Level. Chemical bond compression causes the transition of hydrogen to smaller hydrogen which electron orbit is Deep Dirac level deeper than n=1.

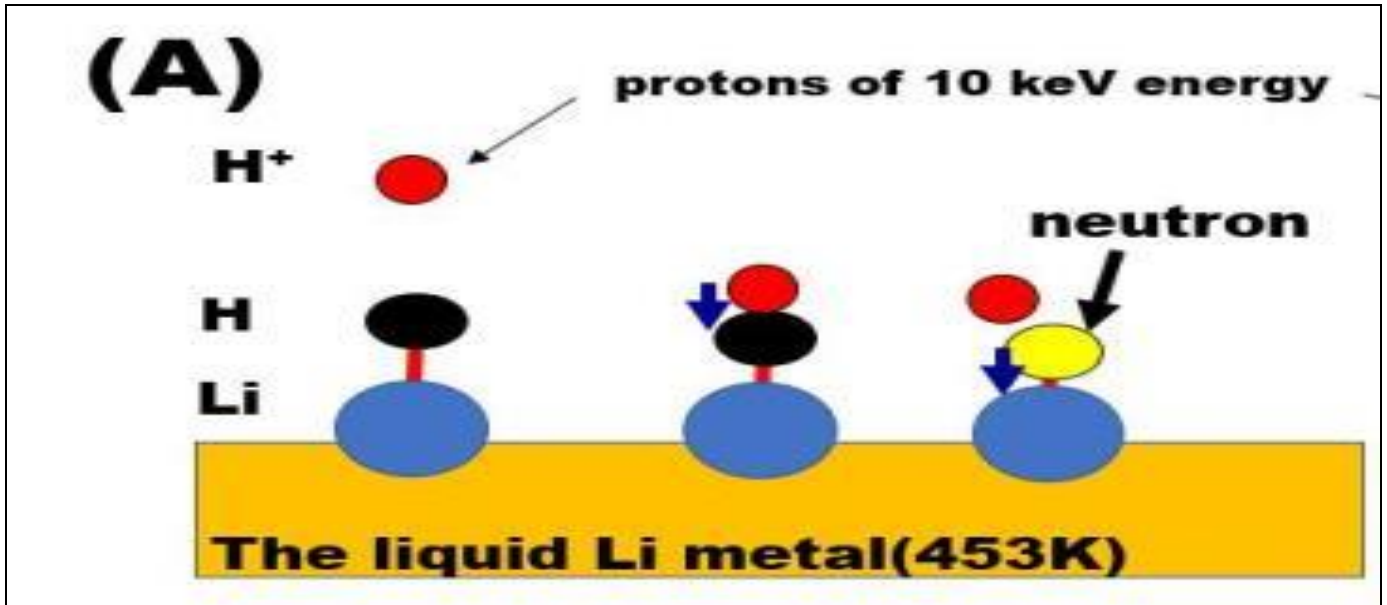
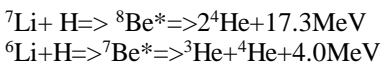


Fig 5: Buffer Nuclear Energy Based on Bond Compression of H-Li in ref [13] and in ref [14].

In ref [13], reported experimental fusion is the following reactions.



Compression of Li-H bond by collision of proton beam to the Li-H bond can cause femto-H(neutron) generation which can fuse to Li to generate ${}^3\text{He}$ and ${}^4\text{He}$, which was experimentally probed in ref [14]. Note that neutron is a pair of proton and electron in deep orbit in ref [8].

IV. MECHANISM OF TRANSMUTATION WITH FEMTO- H_2

A. Mechanism of Brown Gas Generation

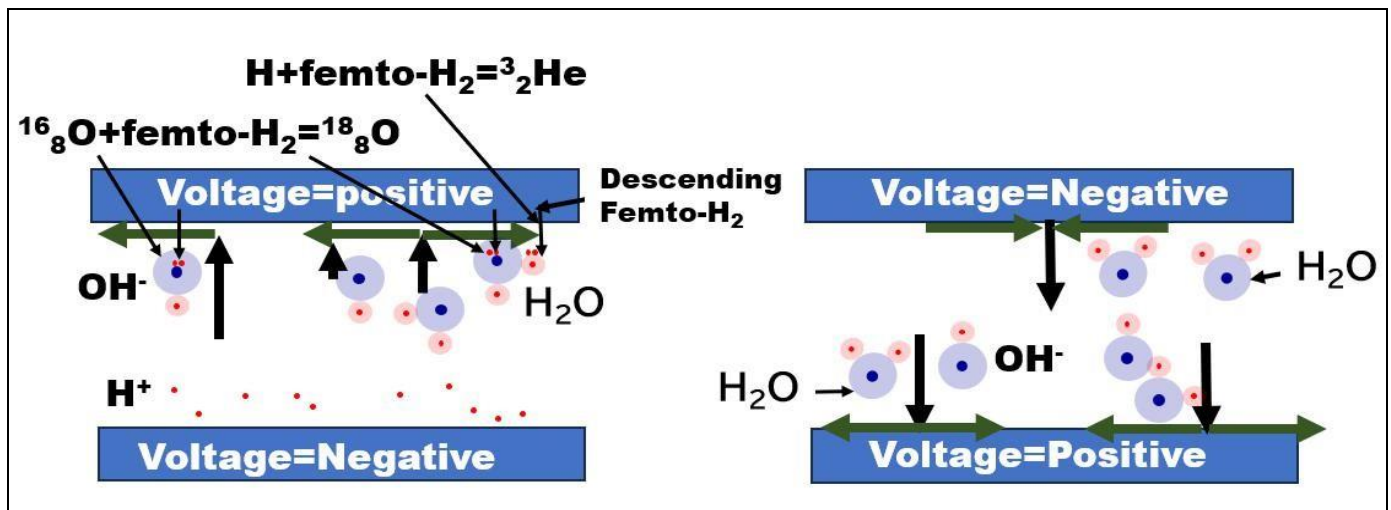
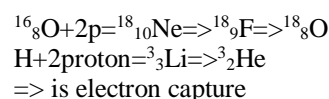


Fig 6: Mechanism of Brown Gas Generation in ref [4],[5],[6].

Brown gas is generated by the transmutation of O in H_2O with femto- H_2 . Positive voltage pulse on the upper electrode which probably was stainless steel. Note that some stainless steels have grains with an FCC crystal lattice and can generate femto- H_2 to transmute H_2O .

OH^- is attracted by positive electrode and after the collision on the electrode it flows along with the electrode

surface. H_2O flows with OH^- . Due to the faster speed of H_2O and OH^- along with metal electrode surface, femto- H_2 can fuse to O and H in H_2O to generate O-18 and helium-3 as the following reactions.



B. Mass Histogram of Brown Gas

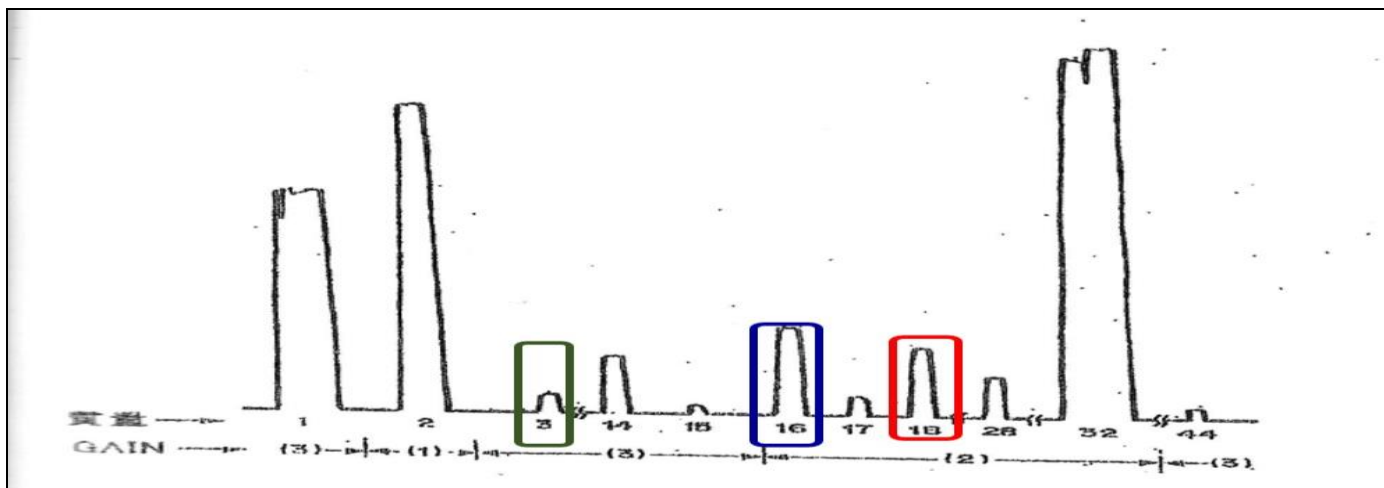


Fig 7: Mass Histogram of Brown Gas in ref [5]

It is clear that mass histogram has mass=18, which is oxygen-18. Helium-3 has the interfering cluster ions peak which covers helium-3 peak.

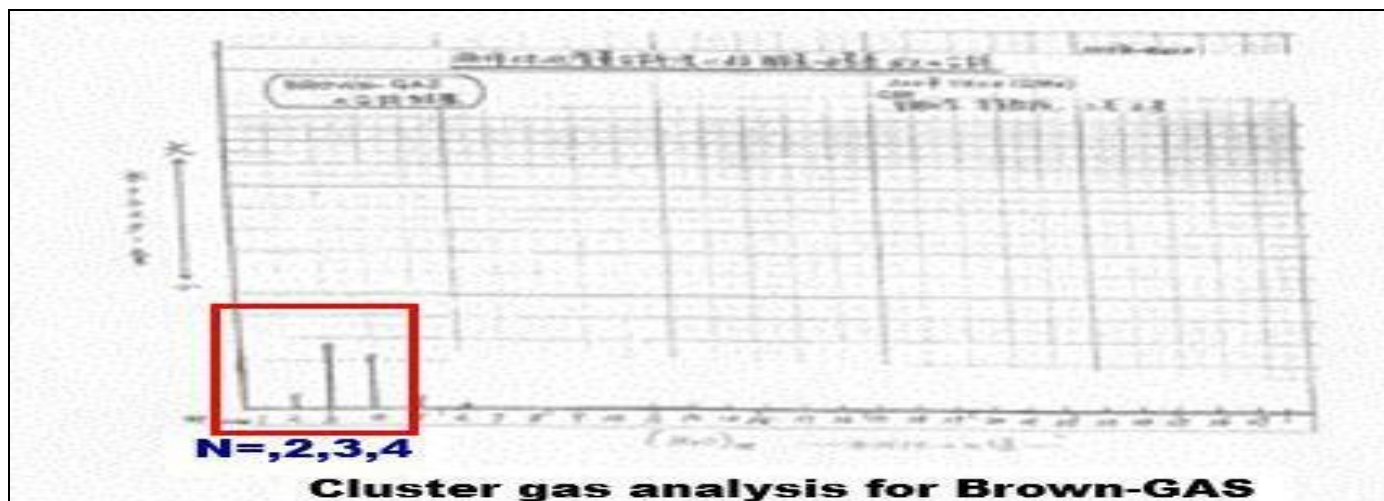


Fig 8: Mass Histogram of Brown Gas by Cluster Gas Mass Analyzer in ref [5]

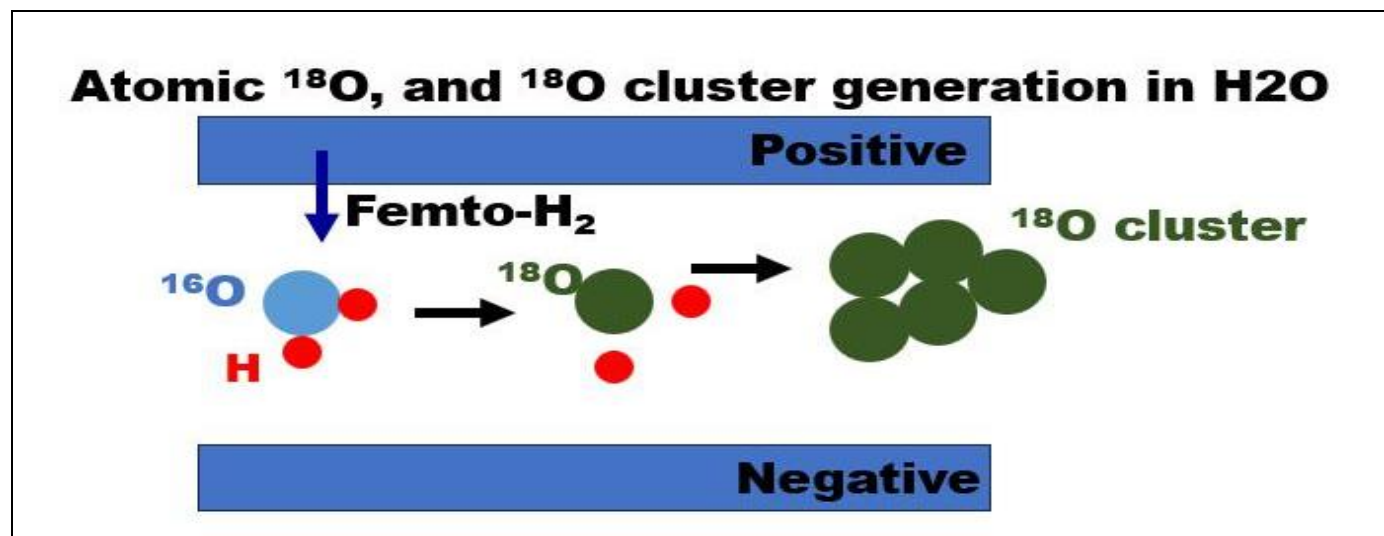
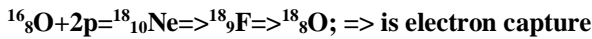


Fig 9: Mechanism of Atomic O-18 Generation, O-18 Cluster

Descending Femto-H₂ can fuse to O-16 of H₂O which is moving faster along with upper metal electrode as is shown in Fig.6.



By transmutation of O in H₂O, O-H bond breaks and atomic H is generated to be proton in H₂O.

Mass histogram by Specially designed mass analyzer for the cluster gas in Fig.9 clearly shows the cluster gas of (O-18) n; n=2,3,4, because atomic O-18 is active and they cluster to be stabilized.

C. Evidence that Femto-H₂ Exists Probes the Existence of Femto-D₂ and my Mechanism of Cold Fusion

As is explained in secIII , I proposed the mechanism of Cold fusion, which is caused by the femto-D₂ generated at the expandable T site. Mass histogram clearly shows that O-18 exists which is caused by the transmutation of O-16 by adding two protons to be O-18, therefore that mass histogram probes that femto-H₂ exists and it also probes my mechanism of my Cold Fusion, and more importantly it probes that current nucleus model in incorrect in ref [7], because femto-D₂ exists, as are explained in the introduction.

C. Compression Mechanism in Biological Systems

V. BIOLOGICAL TRANSMUTATION

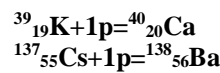
A. Background

It is well known that in biological systems chemical elements can be transmuted into other elements [15]. Although these facts have been established since the early 19th century, they have been ignored by established science ever since. In [16], that authors show that femto atoms can cause the transmutation.

B. Category of Biological Transmutation in ref [1].

I categorized the types of biological transmutation based on the report of ref [15] as follows:

(1) Adding one proton (adding atomic nucleus of Hydrogen)



(2) Adding 6*proton+6*neutron (adding atomic nucleus of Carbon)

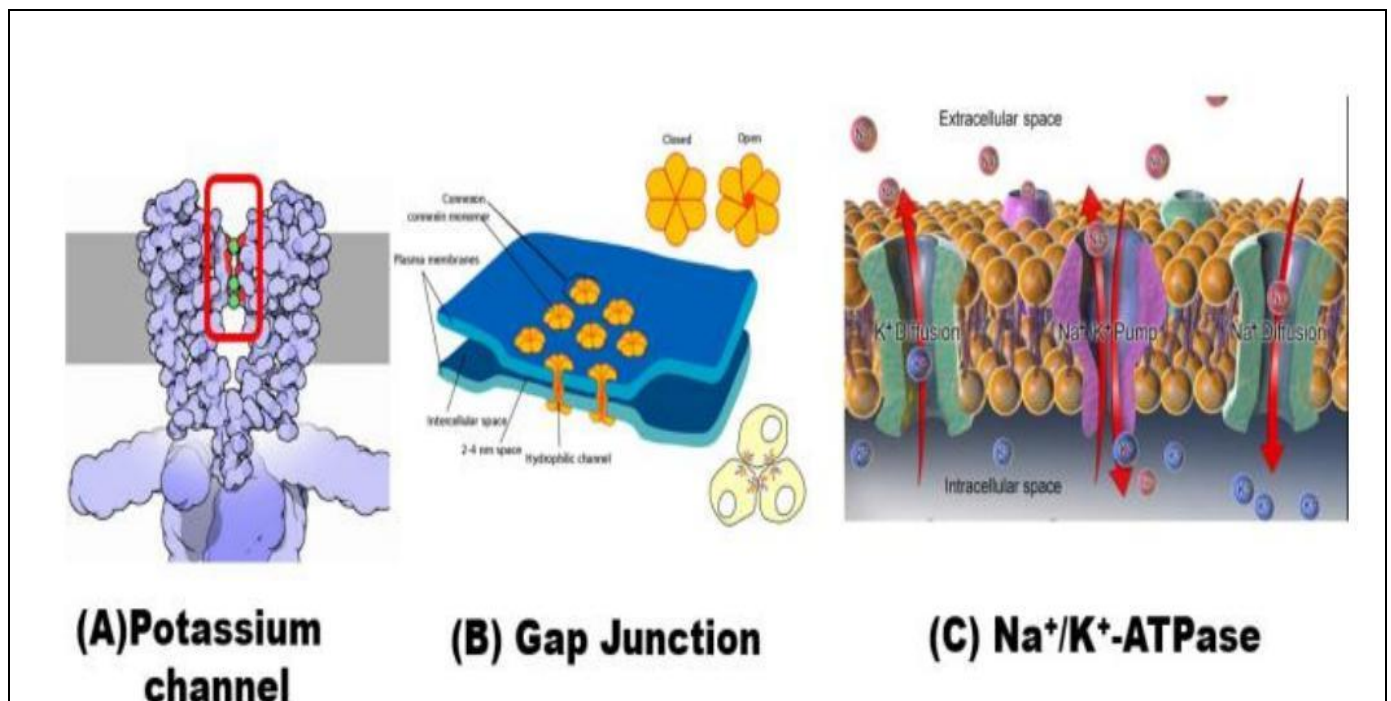
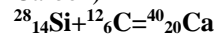


Fig 10: Organelle that Takes in Essential Elements

- Potassium channel.
- Gap Junction
- Na /K -ATPase.

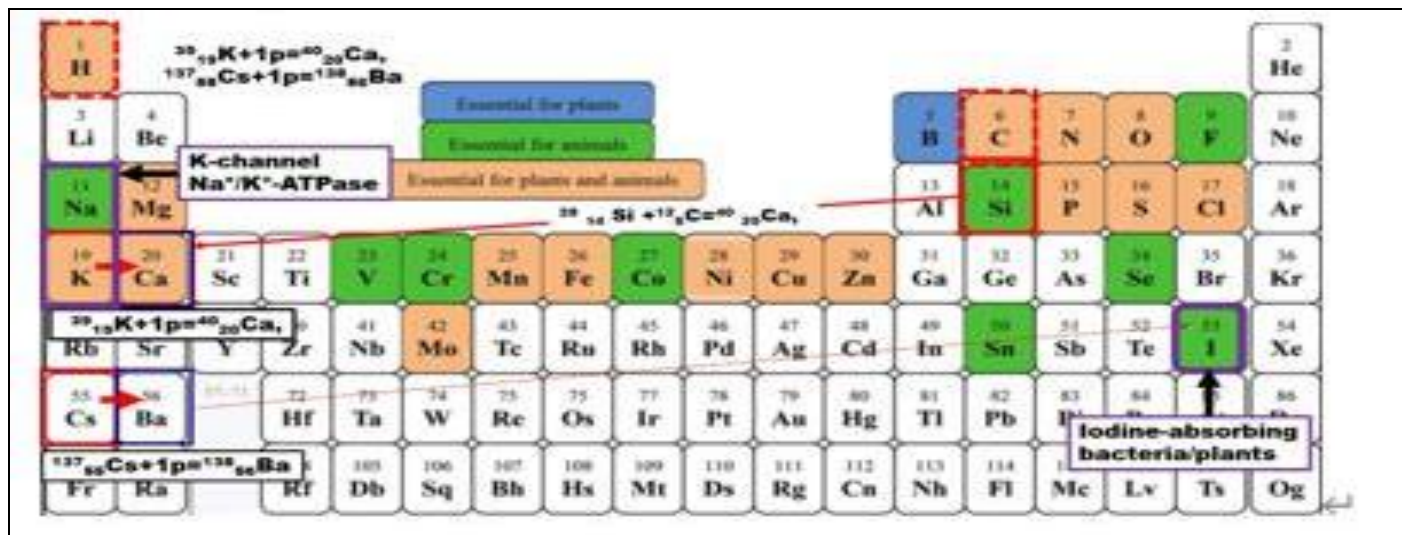


Fig 11: Periodic Table with the Essential Elements for Plants and Animals

As shown above, the biological transmutation can be caused by the compression of the chemical bond compression by the mechanism to take the essential element into the biology to create small carbon (element) or

small hydrogen by the compression of H₂O in metal hydrate. The shielding the Coulomb repulsive force can cause nuclear fusion(transmutation) based on the small element generation.

VI. POSSIBILITY OF EXTRA CURRENT GENERATION

A. Lateral Electrode on the Top

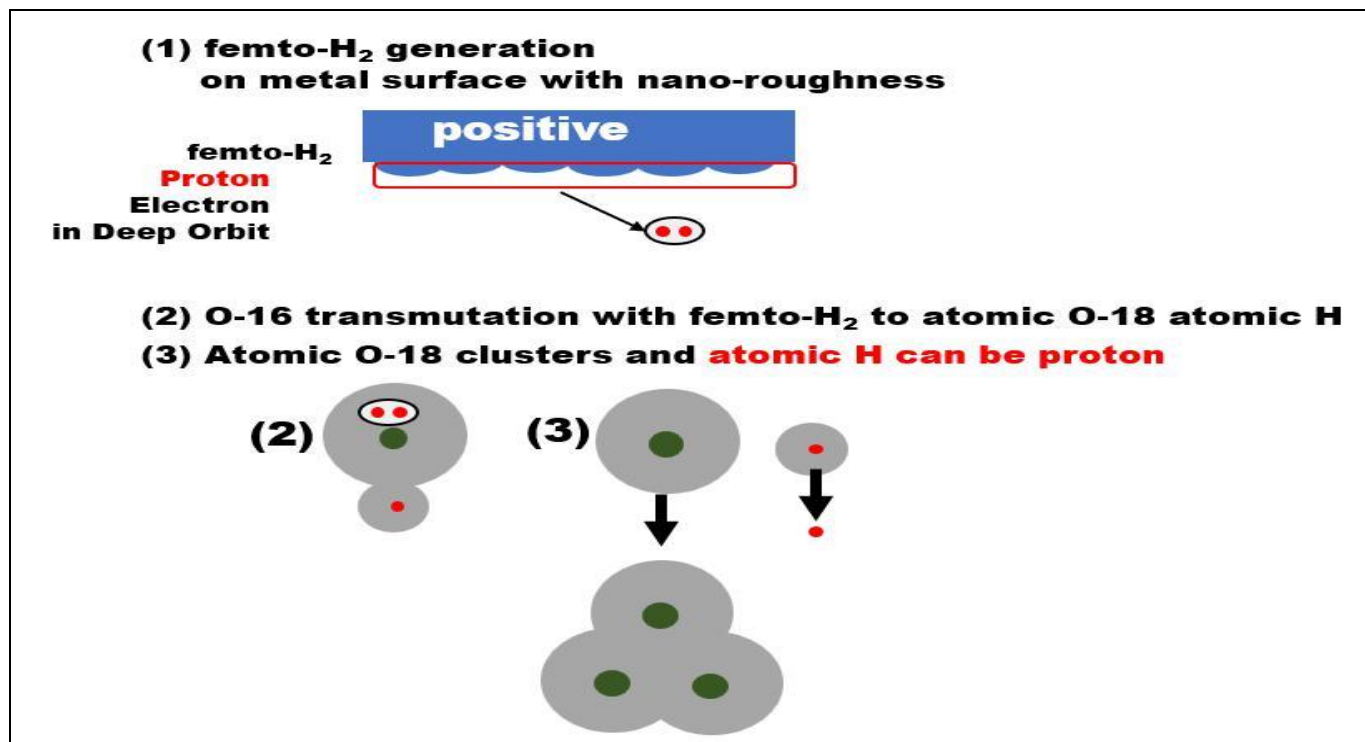


Fig 12(1): Positive Metal with Surface Nano-Roughness can Generate Femto-H₂ which Descends into the OH- to Transmute O in H₂O and H in H₂O to be Atomic O-18 and O-18 Clusters and Proton in ref [5] and [6].

Because femto-H₂ transmute H in H₂O to be proton, which can carry current, so transmutation can increase the current,

B. Tilted Vertical Electrode and Wire Electrode

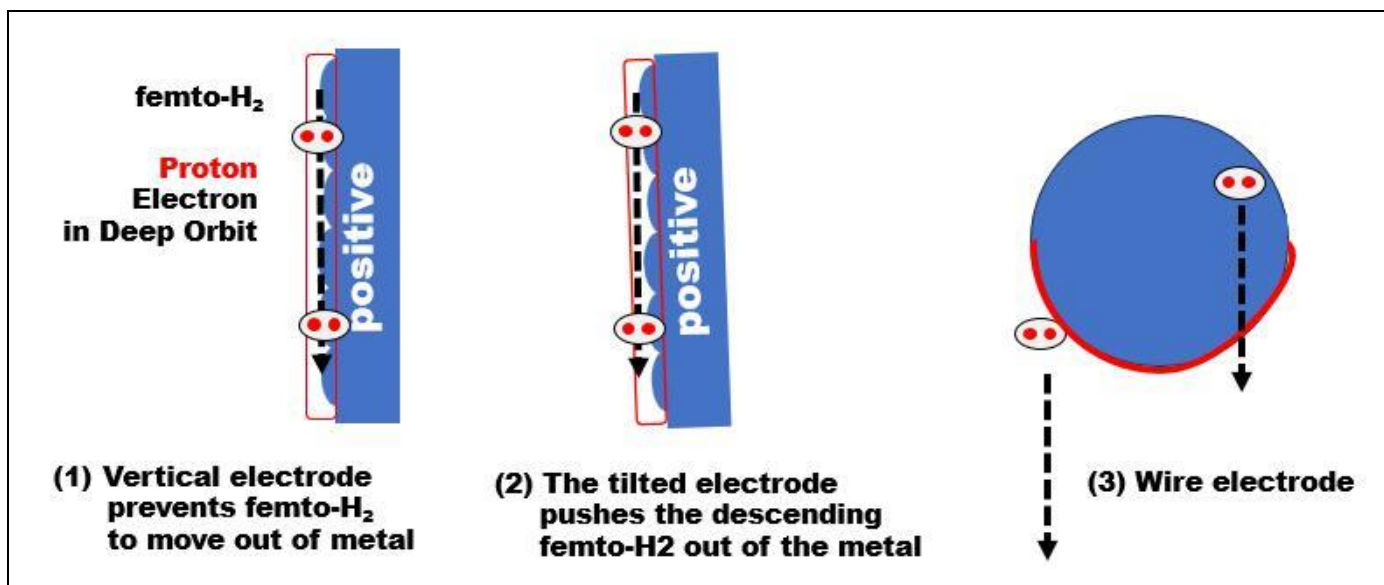


Fig 13(1), (2): Tilted Vertical Electrode can Push the Descending femto-H₂ out of the Metal to Transmute H and O in H₂O and in OH⁻. (3) Wire Electrode

Because of the tilted vertical electrode femto-H₂ go out of the metal and transmute H and O in H₂O and OH⁻ to generate extra current in H₂O. In case of wire electrode femto-H₂ goes out directly from the lower half of the wire electrode, and from upper half of wire electrode femto-H₂ can go out of metal through the metal due to very low fusion possibility.

Note that Pt, Au and Ag has FCC lattice structure, it can generate femto-H₂ as is explained in sec.III, you should evaluate whether or not femto-H₂ molecules have any effect on electrochemical experiments considering the shape of electrode.

VII. OXHYDROELECTRIC EFFECT IN REF [17]

A. Experiment of Oxhydride Effects

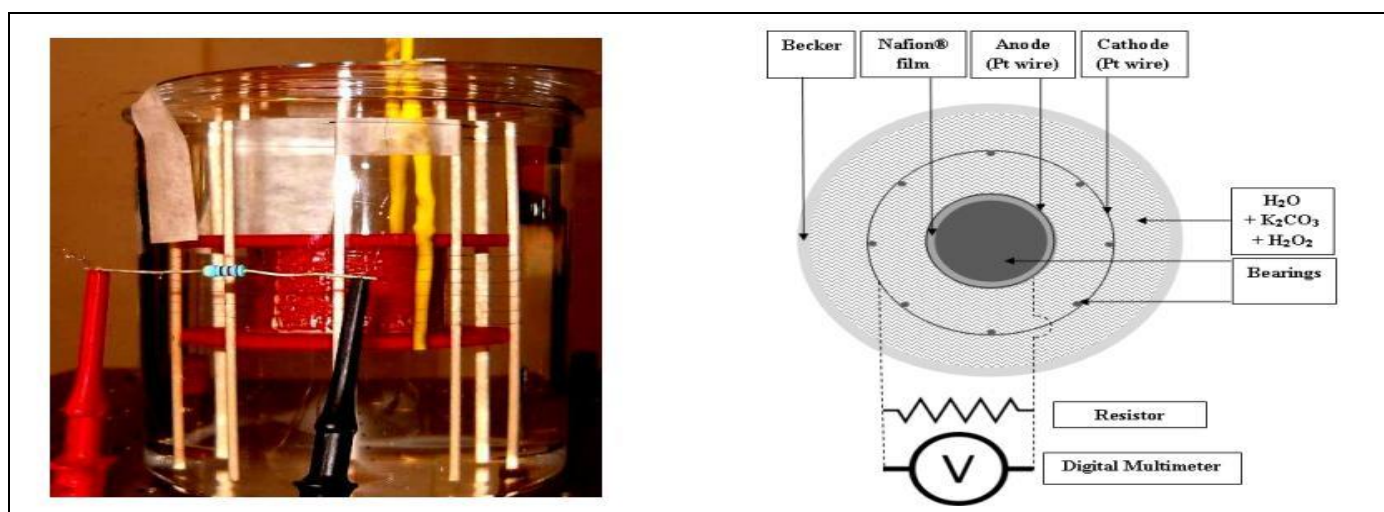


Fig 14: Experimental Set-Up of the Cell with Twin Pt Electrodes: (a) Photo, (b) Transversal Section Scheme. The Simplicity of the Experimental Set-Up is Evident

In ref [17], They show that they used a saturated solution of potassium carbonate(K₂CO₃) in water (H₂O) (with pH >10) as electrolyte, A dc power of the order of hundredths of nW was measured for days through a resistor connected to the twin Pt electrodes. Based on femto-H₂

nature in electrochemical experiments explained in the previous section, it is needed to evaluate this experiment because the electrode is wire and femto-H₂ can be descend in H₂O to be proton which can carry current.

B. Mechanism of Oxhydroelectric Effect based on Femto-H₂ of Cold Fusion

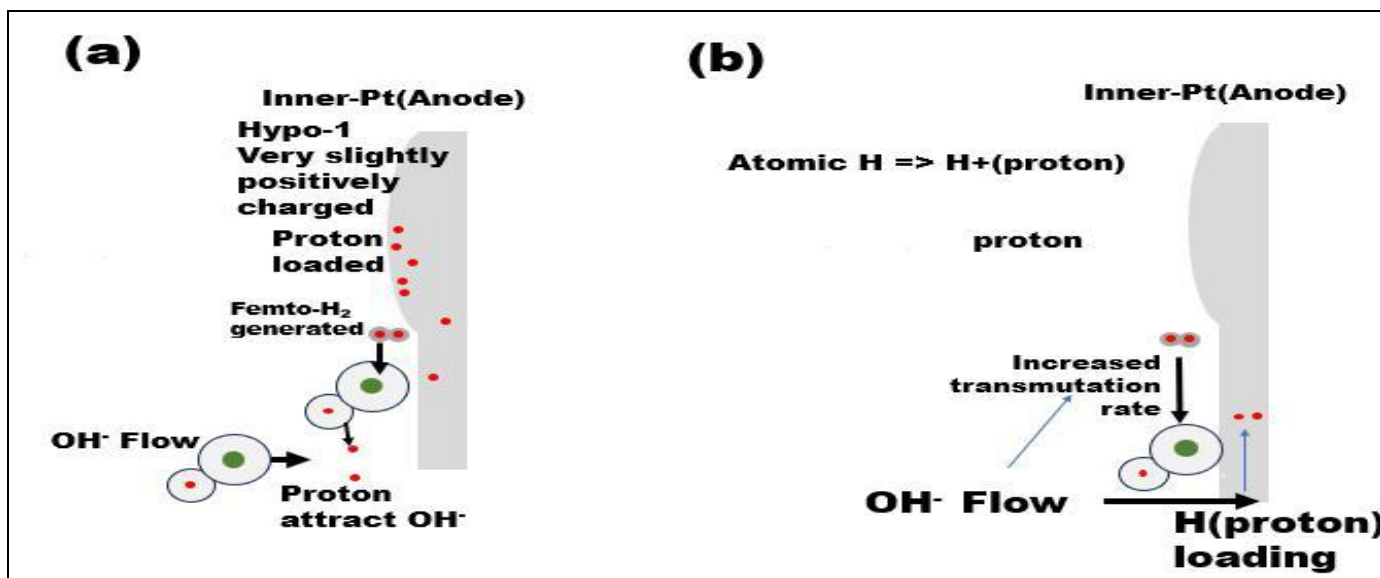


Fig 15: Mechanism of Oxhydroelectric Effect Based on Mechanism of Cold Fusion

I think that once the Pt wire potential fluctuate on the positive side, it can generate extra current by proton to lower [OH-] around positive Pt wire to move OH- faster

towards the positive metal electrode to increase the transmutation of OH- to generate extra H+ near positive Pt wire to creates positive feedback as is shown in Fig.16

VIII. POWER GENERATION FROM AMBIENT HUMIDITY USING PROTEIN NANOWIRES IN REF[18]

A. Experiments

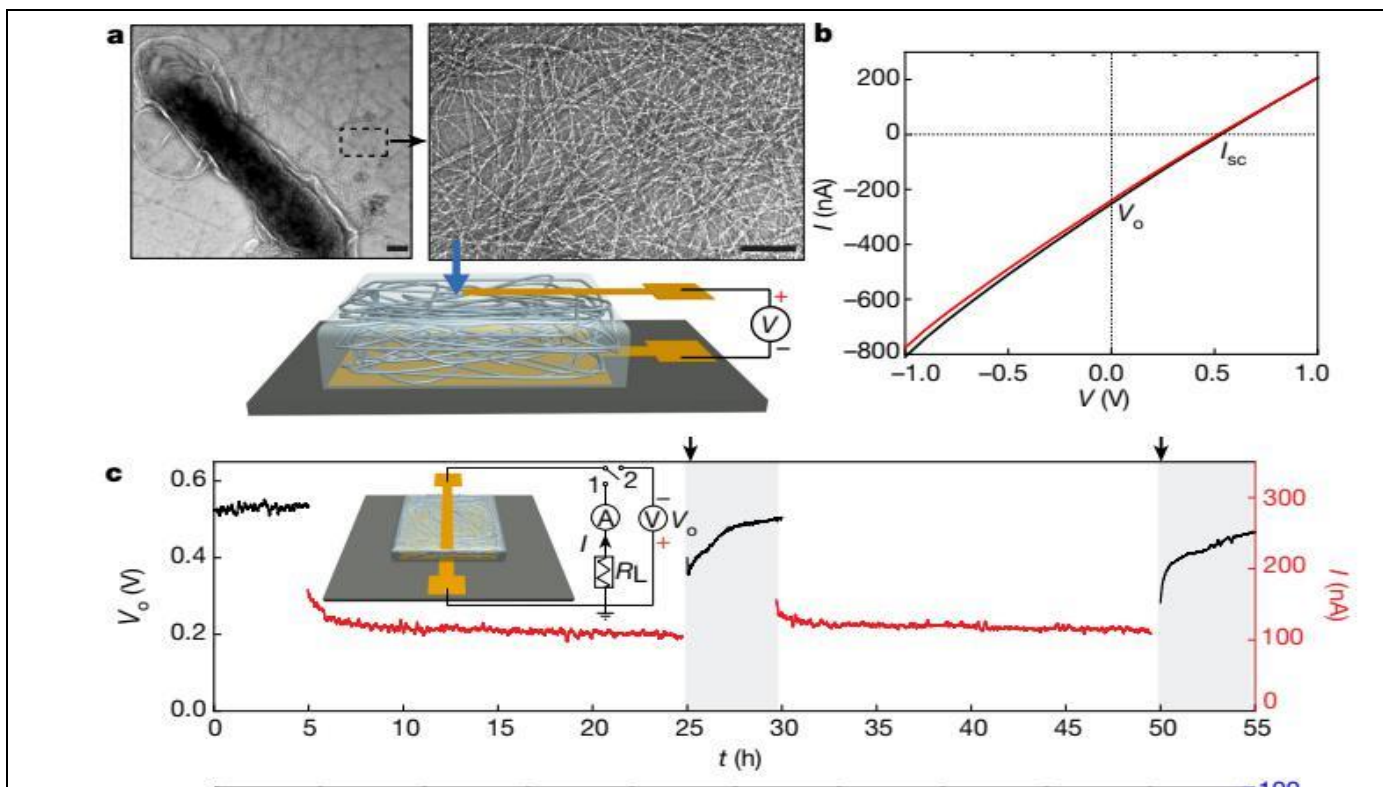


Fig 16: Fig.1 in ref [18]

➤ *Nanowire Devices and Electric Output*

The authors claim that the moisture gradient built up from a non-gradient ambient environment renders their films fundamentally different to all previous moisture-based technologies that lack this capability in the previous researches.

The authors also claim that they show that thin-film devices made from nanometer-scale protein wires harvested

from the microbe *Beobachter sulfurreducens* can generate continuous electric power in the ambient environment. They find the driving force behind this energy generation to be a self-maintained moisture gradient that forms within the film when the film is exposed to the humidity that is naturally present in air. Therefore, they propose the harvesting energy from the environment.

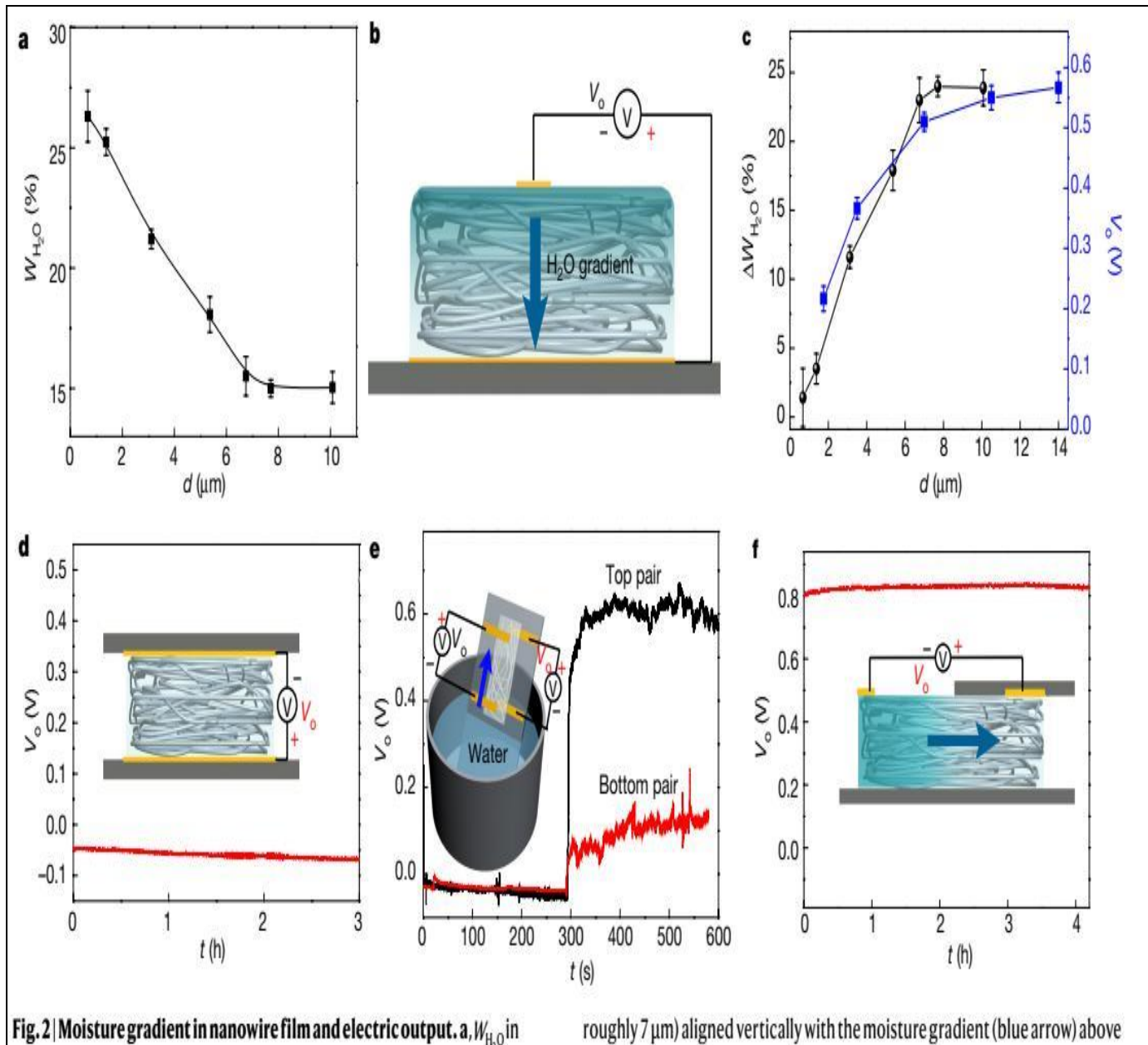


Fig 17: Fig 2 in ref [18].

➤ *Moisture Gradient in Nanowire Film and Electric Output*

They expect nanometer-scale pores or nanopores to form at nanowire–nanowire interfaces in a nanowire film.

B. Possibility of Transmutation of H₂O by Biological Nano-Structure

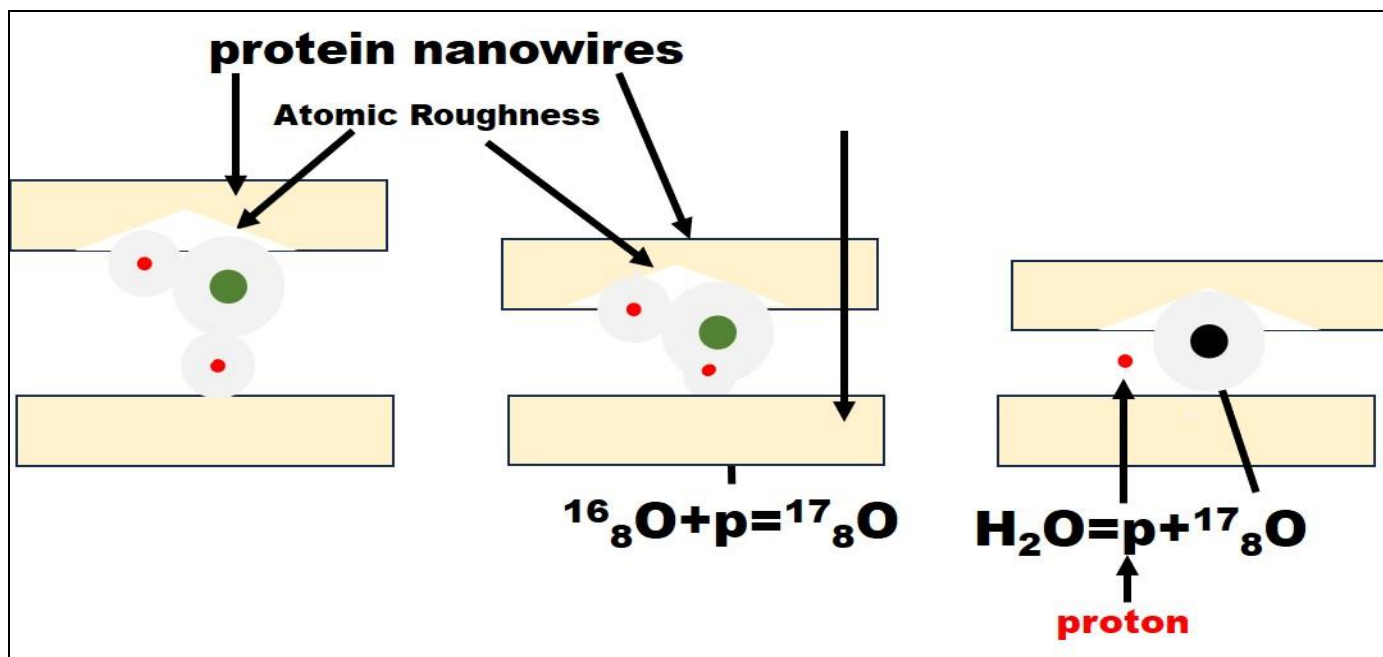


Fig 18: Transmutation Mechanism by Protein Nano-Wire with Nano Structure on its Surface

I think that biological wire can have the nano structure and it can move inside H₂O to compress H₂O to fit into the nano-structure and moving biological wire can compress H₂O to transmute into O-17 and protons. The Compress of O-H bond transmute O-16 to O-17. Therefore, power generation can be caused by this mechanism, and I would like to request the authors to re-evaluate experiments based on the transmutation mechanism based on Cold Fusion.

➤ *Propositions*

- *Mass Spectrometry of Water Impurities in H₂O to Confirm Whether Transmutation Nuclide Occurs in H₂O*

As for both electrochemical and biological experiment, you should confirm whether transmutation occurs in the experiments.

IX. DISCUSSION

A. Biological Experiment

You must take the transmutation by bond compression into account. The bond compression can cause the fusion of the two nuclei connected by the bond fuse together.

B. Electrochemical Experiment

You must take the possibility of femto-H₂ generation and transmutation into account because Pt, and Au has FCC lattice structure and can have nano-roughness to cause Cold Fusion, which generate femto-H₂ which can transmute H₂O to generate Proton.

REFERENCES

- [1]. Noriyuki Kodama, Novel Cold Fusion Reactor with Deuterium Supply from Backside and Metal Surface Potential Control in IJISRT,(2021),Jun, Volume 6, Issue 6, <https://www.researchgate.net/publication/352694771>
- [2]. Noriyuki Kodama, Conceptualized Brown Gas Generator to Transmute Tritium and to Mass-Produce Helium-3, in IJISRT,(2023), October, Volume 8, Issue 10, DOI : <https://doi.org/10.5281/zenodo.10017701>
- [3]. Noriyuki Kodama, Helium-3 Production with Femto-H₂ Based on Cold Fusion Mechanism for Plasma Fusion Reactor, in IJISRT,(2023), July, Volume 8, Issue 7, DOI : <https://doi.org/10.5281/zenodo.8307432>
- [4]. Noriyuki Kodama, Conceptualized Cold Fusion Reactor with Improved Reaction Rate by Segregating Deuterium at Grain Boundaries, in IJISRT, (2023),May, DOI : <https://doi.org/10.5281/zenodo.7943342>
- [5]. Noriyuki Kodama, Evidence that Femto-H₂ Exists Leads to the Correct Mechanism of Cold Fusion (Cold Fusion is Caused by Femto-D₂), in IJISRT,(2024), June, Volume 9, Issue 6, DOI : <https://doi.org/10.38124/ijisrt/IJISRT24JUN543>
- [6]. Noriyuki Koama, Mechanism of Transmutation and Risk of its Commercialization, (Stanly Meyer's Brown's Gas Combustion can be a Real Free Energy), in IJISRT(2024),August,Volume 9, Issue 8,DOI : <https://doi.org/10.38124/ijisrt/IJISRT24AUG1154>

- [7]. Noriyuki Kodama, Mechanism of Hydrogen Embrittlement by Volumetric Expansion and Transmutation by Cold Fusion, in IJISRT, (2023), April, Volume 8, Issue 4, DOI : <https://doi.org/10.5281/zenodo.7894536>
- [8]. Noriyuki Kodama, Correct Nucleus Model proved by Transmutation Experiment by Cold Fusion (Neutron to be Tightly Bound Proton-Electron Pair and Nucleus to be Constituted by Protons and Internal Electrons and no Neutrinos Exist), in IJISRT,(2022),May,Volume 7,Issue 5,DOI : <https://doi.org/10.5281/zenodo.6655161>
- [9]. J. Va'vra, A simple argument that small hydrogen may exist, in Physics Letters B, Volume 794, 10 July 2019, Pages 130-134, DOI: <https://doi.org/10.1016/j.physletb.2019.05.041>
- [10]. Jaromir A. Maly, Jaroslav Vávra, Electron Transitions on Deep Dirac Levels I, in Fusion Technology(1993), Volume 24, Issue 3, DOI: <https://doi.org/10.13182/FST93-A30206>
- [11]. Jaromir A. Maly, Jaroslav Vávra, Electron Transitions on Deep Dirac Levels II in Fusion Technology (1995), Volume 27, Issue 1, DOI: <https://doi.org/10.13182/FST95-A30350>
- [12]. T. Yamamoto, D. Zeng, T. Kawakami, V.Arcisauskaite, K. Yata, M.A. Patino, N. Izumo, J.E.McGrady, H. Kageyama, M.A. Hayward, The role of π -blocking hydride ligands in a pressure-inducedinsulator-to-metal phase transition in SrVO₂H, NatureComm. 8 (2017). Also available from <https://www.jst.go.jp/pr/announce/20171031/index.html>, DOI: <https://doi.org/10.1038/s41467-017-01301-0>
- [13]. Noriyuki Kodama, Cold Fusion Mechanism of Bond Compression, in IJISRT(2021), August,Volume 6, Issue 8,DOI: <https://doi.org/10.13140/RG.2.2.13533.54246>
- [14]. Hidetsugu Ikegami,Roland Pettersson, Evidence of Enhanced Nonthermal Nuclear Fusion, Bulletin of Institute of Chemistry Uppsala University, September, 2002. <http://uu.diva-portal.org/smash/get/diva2:52651/FULLTEXT01.pdf>
- [15]. Jean-Paul Biberian, Biological Transmutations: Historical Perspective in J. Condensed Matter Nucl. Sci. 7 (2012), Available from https://www.researchgate.net/publication/285702581_Biological_transmutations_historical_perspective
- [16]. Meulenberg, Femto-atoms and transmutation, 17th Int. Conf. on Condensed Matter Nuclear Science (ICCF-17), Daejeon, 2012. Also available from <https://jcmns.scholasticahq.com/article/72267-femto-atoms-and-transmutation/attachment/150257.pdf>
- [17]. Roberto Germano, Valentino Tontodonato, C. Hison,D. Cirillo and F.P. Tuccinardi, Oxhydroelectric Effect: Electricity from Water by Twin Electrodes, Available from https://digilander.libero.it/kems/Cirillo_Oxhydroelectric_Effect.pdf
- [18]. Xiaomeng Liu, Hongyan Gao, Joy E. Ward, Xiaorong Liu, Bing Yin, Tianda Fu, Jianhan Chen, Derek R. Lovley and Jun Yao Power generation from ambient humidity using protein nanowires DOI: <https://doi.org/10.1038/s41586-020-2010-9>