

## An Explanation of Earthquake Lightning by Hydrogen Fusion

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The mechanism of earthquakes is currently explained by the plate-tectonics theory which claims the earth's surface is covered with a series of crustal plates that can store elastic energy caused by relative movement of each plate. But recent observations of slow slips of crustal plates by GPS (Global Positioning System) dismiss this idea and a new idea called asperity was created.

The recent deployment of many seismometers and occurrences of earthquakes in Japan revealed explosive nature of earthquakes. There have been reports that earthquakes and earthquake lightning took place simultaneously, but there has been no plausible hypothesis to correlate each other. Recently, R.L. Mills has reported that atomic hydrogen can generate energy somewhat between chemical reaction and nuclear reaction by lowering the electron orbit from the ground state to lower state. According to Mills, hydrogen atoms can achieve lower states than ground state by a resonant collision with a nearby atom or combination of atoms having the capability to absorb the energy to effect the transition, namely, an integer multiple of the potential energy of the electron at atomic hydrogen,  $m \cdot 27.2 \text{ eV}$  ( $m$  is an integer). He named this shrunken hydrogen atom hydrino and claims that this hydrino can be a catalyst to shrink other hydrinos to further lower states. He named this reaction the BlackLight Process.

It is known that water injection into deep wells can cause earthquakes.

The Earth's crust is divided into several separate solid plates. Subduction occurs when two plates collide and the edge of one dives beneath the other. The crust contains water and when it contacts with hot magma, metals in magma such as iron produce atomic hydrogen according to the following reaction.

$3\text{Fe} + 4\text{H}_2\text{O} = 8\text{H} + \text{Fe}_3\text{O}_4$ , where H designates atomic hydrogen.

Once atomic hydrogen is produced and if there is no heat sink at the collision point, just a collision of atomic hydrogen for instance,  $\text{H} + \text{H} = \text{H}_2$  (molecular hydrogen) wouldn't take place but just elastically repulse each other. This suggests that high pressure atomic hydrogen gas will build up under the ground. As is shown below, a simultaneous collision of 3 atomic hydrogen is the BlackLight Process because the ionization energy of hydrogen is 13.6eV and the sum of the ionization energy of 2 hydrogen is 27.2eV.

$\text{H} + \text{H} + \text{H} = [\text{H}_{n=1/2}] + 2 \text{p} + 2 \text{e}$

p designates proton and  $[\text{H}_{n=1/2}]$  designates a hydrogen whose electron orbit is shrunken to 1/2 the radius of a normal one and these will be shrunken further to lower orbits as reaction continues. Ions and electrons thus produced will recombine, resulting in generation of energy somewhat between chemical and nuclear reaction. It can be postulated that if containing vessels are tight enough as is the case of underground, well shrunken hydrinos which have a relatively small Coulomb barrier can fuse each other.

This paper will explain the first step of the fusion shown below can explain the cause of earthquakes lightning.

$\text{p} + \text{p} = \text{d} + \text{positron} + \text{electron neutrino}$ , where d designates deuteron.

Positron will recombine with electron, emitting gamma ray (0.511MeV) which may not be transmitted to the surface through the cracks made by earthquakes, but electron neutrinos can penetrate the crust. Electron neutrinos have very little capability to interact with matters but it can be reasonably postulated that huge neutrino flux generated by M7 class earthquakes (equivalent to one mega-ton class hydrogen bombs) can energize gas molecules in the atmosphere, resulting in generation of lightning or luminescence. Luminescence by neutrinos is utilized to study the characteristics of neutrinos in the research laboratories and is a well known phenomenon.