Neutron Measurements in a AC-Discharged Tube

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A schematic diagram of the device is shown in Fig.1. Discharge is produced by an AC voltage (300V-600V, 50Hz) applied between two Pd Coaxial elecerodes in a glass tube filling deuterium gas with pressure in the range of 0.1 to tens Torr. The neutron counts are recorded by two long Counters Consisting of BF_3 Counter. One of the neutron detectors is close to the glass tube and another is far away from glass tube for baokground noutron level measurements. After 20 minutes discharge cleaning with 350V AC at this time increasing the voltage to 500v, the neutron counts are suddenly increased to the level higher than 4 times of the background. Fiffteen minutes later increasing a little deuterium pressure again, the neutron counts rise to a level of 10 times higher than the bacground (see Fig.2).

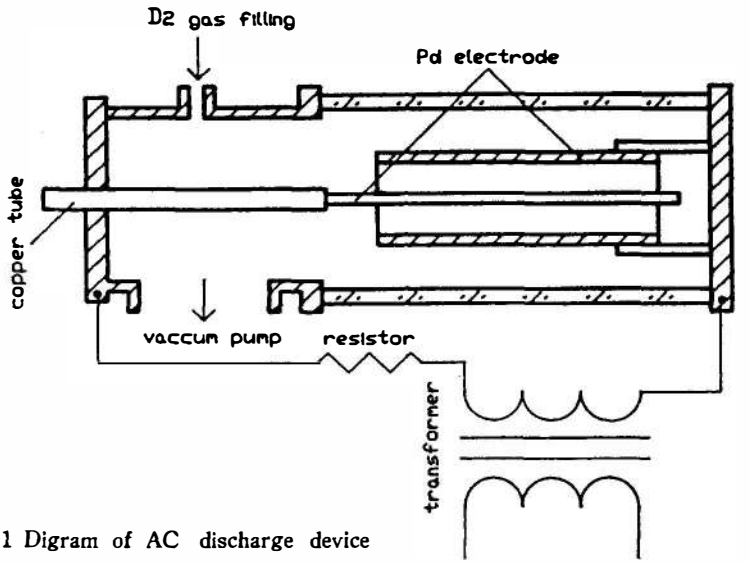

Fig. 1 Digram of AC discharge device

FRONTIERS OF COLD FUSION

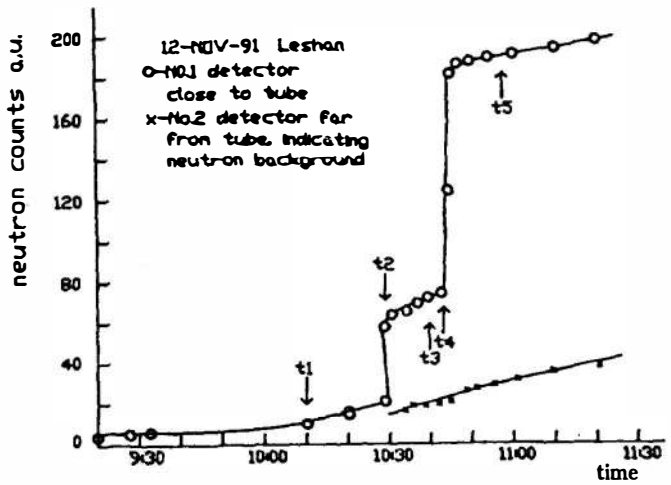

Fig.2 Neutron count changing with experiment condition changing. At time t1 starts gas filling and AC voltage is 350V, at t2 voltage raises from 350V to 500V, at t3 gas fills further, at t2 and t4 neutron counts increase suddenly, at t5 stops gas filling.

On the basis of traditional electrolysis proposed by Fleischmann and Pons, a electrolyzer consisting of Pd cathod and Pt anode placing in a solution of D_2O and LiOD is placed in a pulsed magnetic field to observe the effect of magnetic field upon the electrolysis. The width, peak hight and period of pulsed magetic field are as follows: 50 microsecond, 7 Tesla and 13 second respectively. One of above mentioned long counter is used to measure the neutrons from the electrlyzer. The neutron measurement results are indicated in Fig.3 from which one can see that the measured neutron counts with and without pulsed magnetic field appear to be same.

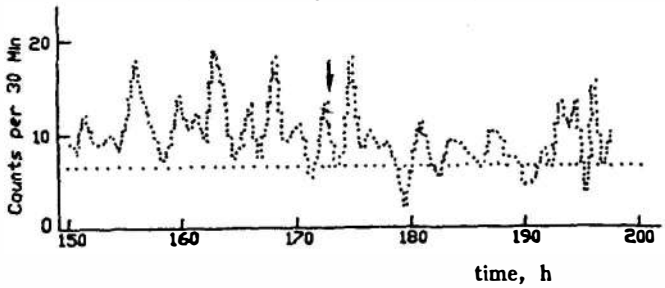

Fig.3 Neutron count changing with time. The arrow indicates the time applying pulsed magnetic field. The straight line denotes average neutron background counts.

References

1. Martin Fleischman and Stanley Pons, Submitted to Journal of Electronanalytical Chemistry, March 11, (1989).
2. Z.W.Li, Private communication, (1989).