



Research Article

Priority in Nuclear Reactions in the Cold

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Abstract

Fleischman, Pons and Hawkins [1] have been thought to have published the first invitro (but unknown) nuclear reaction in the cold in March 23, 1989. Bockris and Mallove [2] published in 1999 a survey of earlier nuclear reactions in the cold (later condensed matter nuclear reactions). Included in their list was a publication by two Italian engineers Speri and Zorzi [3] which came out in 1989. Drawn by this latter fact, in 2011, I investigated further the Speri and Zorzi paper which Mallove and I had mentioned with only a publication date. I found the paper in an obscure medium and discovered upon being able to read it that Speri and Zorzi had been awarded an Italian patent in 1978. The patent was awarded for the discovery of the fusion of hydrogen isotopes to form helium. The original work was carried out in 1974.

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Keywords: Fleischmann, Nuclear reactions, Priority, Speri and Zorzi

1. Background

The experiments of Rutherford led to the concept held by all physicists: nuclei were extremely difficult to break, needing bombardment by neutrons and temperature in the region of 900°C.

In view of doubts raised about Fleischmann et al., we converted deuterium to tritium. I decided to attempt a reaction, where the products would be there only if a nuclear reaction had taken place.

Starting the day after the Fleischmann and Pons announcement, we found tritium by August of the same year.

When, eventually, I found the Speri and Zorzi *paper*, it revealed a change in the important position of priority as to nuclear reactions “in the cold”. The Italian workers had taken hydrocarbon mixtures and sparked them off to explosion, measuring the heat evolved in that action.

Speri and Zorzi found that they were measuring more heat than the classical rules would allow and it was then that they made their fundamental suggestion eleven years in advance of Fleischmann and Pons that they were seeing the effect of a nuclear parallel reaction (1978).

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Table 1. Priority in (INVITRO) Nuclear Reactions in the Cold

Authors	Claim	Confirmation	Comments
Speri and Zorzi, 1978 [3,4].	Shows evidence that sparking mixtures of hydrocarbons produces He^4 . Suggests: $\text{D} + \text{D} \rightarrow \text{He}^4$, 1974.	Patent 1978 [4].	Publication 1989 [3].
Fleischman and Pons, 1989 [1].	Electrolysis of $\text{LiOD}/\text{D}_2\text{O}$ gave excess heat: Suggests an unknown nuclear reaction, March 23, 1989.	Melvin Miles claimed co-production of He^4 through $\text{D} + \text{D} \rightarrow \text{He}^4$ at Como, 1991. (Objections: Glass transparent to air He) [6].	Bockris and Chien [7] using mass spectroscopy at Rockwell International to investigate helium inside palladium (found helium 1992).
Bockris and Packham, 1989 [5].	Found tritium after long pre-electrolysis, August 1989.	Bhabha Atomic (India). Eleven teams attempting tritium. Nine successful, 1989.	E. Storms and C. Talcott-Storms at Los Alamos published tritium study in 1991 [8].

2. The Speri and Zorzi Work

Speri and Zorzi were persuaded (cf., Professor Pappas from the University of Athens) to reveal the work that they had done in 1974 in a patent in 1978 [4].

The hydrocarbon mixture and finer details of this work are to be found in the patent itself, but the important thing is that they found a significant excess of heat over that which would be calculable by means of classical considerations and made the historical suggestion that what was happening was the reaction of deuterium atoms together to form helium.

Although it is reasonable to speculate that Speri and Zorzi were eager to keep “quiet” about their suggestion, they did take out a patent of the Italian office and received finally in 1978 an Italian patent, the number of which is 1024274 (1978).

It is possible to suggest that Speri and Zorzi did not publish their paper shortly after they had obtained a patent, and indeed published in a report of a conference devoted to the origin of mathematics and physics – about as obscure a source as one could get – and avoided thus the repudiation at the suggestion that a nuclear reaction could occur in the temperature of a chemical gas reaction.

Acknowledgement

I thank my office staff here in Florida for excellence in being able to find the obscure Speri and Zorzi paper in a report on the study of the origin of ideas in mathematics and physics.

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