IN MEMORY OF GIULIANO PREPARATA

Giuliano Preparata died on April 24 in Frascati, and we felt that we had to remember him in this Conference for his important contributions to cold fusion. This is only a brief introduction to the speech in memory of Giuliano that will be presented by Martin Fleischmann, who had been in close touch with him in recent years.

Giuliano became interested in cold fusion immediately after the initial announcement of Fleischmann and Pons in March 1989. I like to remember a paper, written by Giuliano together with Tullio Bressani and Emilio Del Giudice, called "First steps toward an understanding of cold nuclear fusion". The date of appearance on "Il Nuovo Cimento – Note Brevi" is May 1989, and it was received on April 26, 1989. Thus, it was written just a month after the announcement. The important aspect to note is that in this work an original way of looking at the phenomenon was pointed out, consisting in the claim that a coherent and collective interaction among the deuterons, palladiums, and electrons was required to explain the results of the experiments. Shortly afterwards Giuliano Preparata foresaw two features that in these eleven years have been more and more evident. The first feature is the fact that a phenomenon like cold fusion in the palladium lattice could take place only if a threshold in the density of the absorbed deuterium was reached: the value that he evaluated was one deuterium atom per palladium atom. The second was that the outcome of the fusion reaction, differently from what happens in well known high energy D+D fusion reactions, would not be preferably neutrons, or tritium, or other energetic particles, but just ^{4}He, and the excess energy would be transformed into heat.

Giuliano was very active all these years. In particular, the second international Conference on cold fusion was held in Como, at the end of June – beginning of July 1991, and Giuliano, Emilio Del Giudice and Tullio Bressani were the Chairmen. I remember that Conference as the most fruitful in the brief history of Cold Fusion. In fact, in that Conference two important new pieces of evidence were presented: one by Mike McKubre , who found that a threshold was necessary in order to obtain heat excess in his electrolysis experiments (around D/Pd = 0.9), and the evidence by Melvin Miles that ^{4}He could be found and could be correlated with the heat measured. So, the two things that Giuliano had foreseen so early were presented in Como. As you well know, the uncertain reproducibility of these experiments has made it difficult to confirm these results, but in the nine years that have passed since then, in which Giuliano and I have participated in this adventure, we have seen growing evidence of these two facts.

I want to recall what Giuliano did at ENEA. As I said earlier, he died in Frascati; he was in Frascati because he proposed in 1998 the start of a new program, and he was strong enough to convince politicians and research managers to start a serious program and to have it funded by the Italian Government And in fact this program has been started in Frascati mostly because of Giuliano Preparata. He took a sabbatical year from the University of Milan, where he was a Professor, and came to Frascati, and he rented a house, the house in which he died. He spent last year in Frascati being extremely active, encouraging the people in the laboratory. It is easy to perceive the effect of his activism: life in the laboratory has changed since Giuliano came. He also participated in the February two-day meeting of the Science Program Committee: he

was not well, but nevertheless he wanted to participate. He was extremely active, with his intelligent criticism, pointing out faults of the abstracts that he examined: his contribution was very important in making the proper choices for this Conference, and I am very grateful to him for his help.

Let me finish by recalling that Giuliano was not only a dedicated researcher in cold fusion. He was a great scientist. He has shed light in many fields of Physics, and also outside of Physics. It is a pity that he is no longer with us: I think that we must look to his memory for guidance on the future of science in general, and of cold fusion in particular.

Franco Scaramuzzi