Hydrogen Embrittlement and Piezonuclear Reactions in Electrolysis Experiments

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Abstract

Several evidences of anomalous nuclear reactions occurring in condensed matter have been observed during electrolysis, solid fracture and liquid cavitation. Despite the great amount of experimental results coming from the so-called Cold Nuclear Fusion and Low Energy Nuclear Reaction research fields, the comprehension of these phenomena still remains unanswered. On the other hand, as reported by most articles devoted to Cold Nuclear Fusion, one of the principal features is the appearance of micro-cracks on the electrode surfaces after the experiments. In the present paper, a mechanical explanation is proposed considering a new kind of anomalous nuclear reactions, the piezonuclear fissions, which are a consequence of hydrogen embrittlement of the electrodes during electrolysis. Energy emissions in the form of neutrons and alpha particles were measured during the experiments, where the electrolysis was obtained using Ni-Fe and Co-Cr electrodes in an aqueous solution. The electrode compositions were analyzed both before and after the experiments recognizing the effects of piezonuclear fissions occurring in the host lattices.