Decay-Instability of Transmutated Chemical Elements Obtained in LENR Experiment

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It is well-known that there are chemical element transmutation and their isotope composition change in LENR experiment [1-3]. Time evolution of the transmutated chemical elements and their decay-instability have been studied in this work. The new transmutated chemical elements (Fe, Cu, Ca…) were obtained from the initial cathode material Ni (0,9999) in plasma-water reactor by a pulsed repetitive electric discharge (I_d ~100 A, t_i ~10 μs, F_i ~2 κHz), [1,2]. The chemical compositions of these initial elements and transmutated ones were measured by EDS method and ICP-MS method. It was revealed that there is considerable decay-instability of these transmutated chemical elements at time. This instability was accelerated dramatically by external weakly ionized plasma action (WIP, N_e/N_a ~10^{-6}), figure 1. One can see from this figure that the relative concentration of the initial Ni atoms (cathode material) is not changed, but the relative ones of exposed electrode and the relative ones of dusty erosive cathode particles are dramatically decreased. Author supposes that theoretical model of bi-nuclear atom [4] can explain the obtained experimental results.

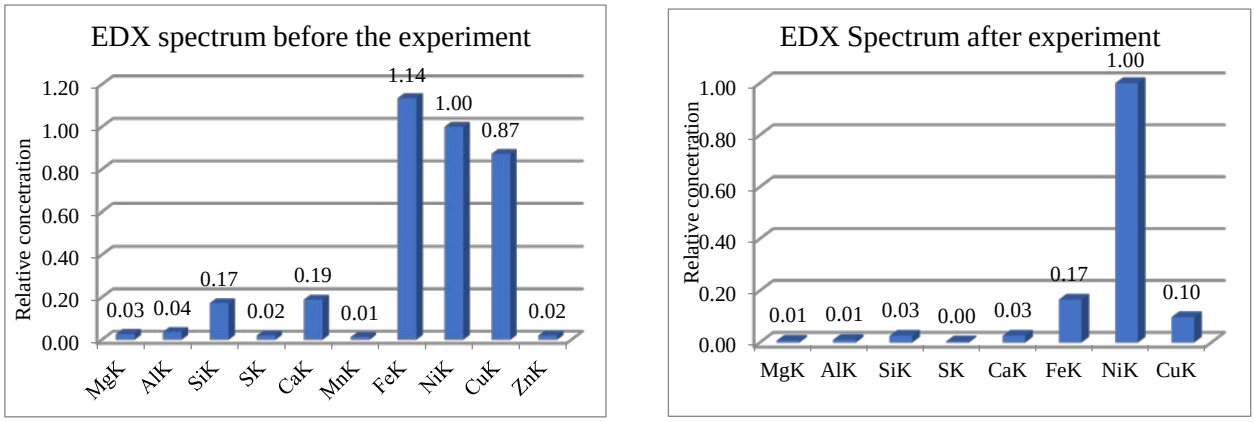

Figure 1. Relative concentrations of the transmutated chemical elements (erosive cathode particles) before exteriment (right) and after WIP's actions (left). Processed EDS spectrums

References

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