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**Production of High Energy Particles Using the Pd/D Co-Deposition Process** PAMELA A. MOSIER-BOSS, STANISLAW SZPAK, FRANK E. GORDON, SPAWAR Space Systems Center, San Diego — Using the Pd/D co-deposition technique<sup>1</sup>, we have obtained evidence (i.e., heat generation, hot spots, mini-explosions, radiation, and tritium production) suggestive that nuclear reactions can and do occur within the Pd lattice. It was found that these reactions are enhanced in the presence of either an external electric or magnetic field. SEM analysis of the cathodes shows morphological features suggestive of localized melting of the palladium. EDX analysis of these features show the presence of new elements which result from transmutation<sup>2</sup>. To verify that these new elements are indeed nuclear in origin, experiments have been conducted using CR-39 detectors, a commonly used etch-track detector for recording the emission of high energy particles such as alphas and protons. When the co-deposition reaction was conducted in either an external electric or magnetic field, numerous tracks due to high energy particles were clearly observed on the CR-39 detector in those areas where the cathode is in direct contact with the detector.

<sup>1</sup>S. Szpak et al, J. Electroanal. Chem., v 580, 284(2005).

<sup>2</sup>S. Szpak et al, Naturwissenschaften, v 92, 394-397(2005).

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