Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Heat Produced During Electrolysis with a Tubular Pd Cathode
WU-SHOU ZHANG, JOHN DASH, QIONGSHU WANG, Low Energy Nuclear Laboratory, Portland State University, Portland, OR 97207-0751 — An explosion occurred during electrolysis of heavy water with a tubular Pd cathode[1] A Pd tube from the same batch was used as the cathode during electrolysis in a Seebeck envelope calorimeter which is capable of accurate heat measurements. Data was obtained first from a three cm length of the tube on one end, and then from a three cm length on the opposite end. There were no explosions, but both ends of the tube produced continuous excess thermal power (356 mW +/- 11 mW maximum). In addition there were 39 heat bursts (1.1 W maximum) from the first end during 201 hours of electrolysis and 58 heat bursts (1 W maximum) during 443 hours of electrolysis from the opposite end of the tube. The period of the heat bursts ranged from a few minutes to 3.3 hours.

Data on the topography and microchemical composition of the tube surface before and after electrolysis will also be presented.

[1]X.-W. Zhang, W.-S. Zhang, D.-L. Wang et al, Proc. ICCF3, Nagoya, Japan, Oct 21 to 25, 1992, p. 381.

Scott Chubb
Naval Research Laboratory

Date submitted: 22 Nov 2006 Electronic form version 1.4