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Excess Heat from Glow Discharges in Deuterium Gas

Thomas B. Benson,
The Greenview Group, Pleasanton CA
(thomasrex100@yahoo.com)

Thomas O. Passell,
TOP Consulting, Palo Alto, CA
and D2Fusion Inc., Foster City, CA
(topconsulting@sbcglobal.net)

ABSTRACT

Following our previous publication of the design and calibration of low- powered glow discharge units at ICCF-11, work is reported here on results from several tubes that have evolved from the earlier designs. Early results indicate output heat is obtained with deuterium gas at a pressure of a few Torr at ratios relative to input total electrical energy of 1.5 to 2.0. The same tubes operated at similar pressures of light hydrogen and argon revealed ratios of 1.0 to 1.2. The tubes giving the best results have been in a point to point geometry rather than the original cylindrical one. Anodes were steel rods of ~ 4 mm diameter. Cathodes were bundles of fine wires of palladium or platinum with an overall diameter of less than 3 mm, or palladium nano-crystals deposited in porous Vycor glass or in porous alumina, with pores ranging from 4 to 100 nm. Anodes were coated with crystals of lithium borate salt. Anode-cathode gaps of about 1 to 2 mm were used. Power to the tubes was DC of about 500-800 volts having an AC ripple of less than 0.75%. Tubes were operated with a total input power of 0.4 watts. Calorimetry on the low voltage DC to high voltage DC power supply converters showed efficiencies around 35 to 70%. Further results with similar tubes now under construction will be reported at the meeting.