

Abstract Submitted
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Use of Helium Production to Screen Glow Discharges for Low Energy Nuclear Reactions (LENR) THOMAS O. PASSELL, TOP Consulting, P.O. Box 336, Palo Alto, CA 94302-0336 — My working hypothesis of the conditions required to observe low energy nuclear reactions (LENR) follows: 1) High fluxes of deuterium atoms through interfaces of grains of metals that readily accommodate movement of hydrogen atoms interstitially is the driving variable that produces the widely observed episodes of excess heat above the total of all input energy. 2) This deuterium atom flux has been most often achieved at high electrochemical current densities on highly deuterium-loaded palladium cathodes but is clearly possible in other experimental arrangements in which the metal is interfacing gaseous deuterium, as in an electrical glow discharge. 3) Since the excess heat episodes must be producing the product(s) of some nuclear fusion reaction(s) screening of options may be easier with measurement of those “ashes” than the observance of the excess heat. 4) All but a few of the exothermic fusion reactions known among the first 5 elements produce He-4. Hence helium-4 appearance in an experiment may be the most efficient indicator of some fusion reaction without commitment on which reaction is occurring. This set of hypotheses led me to produce a series of sealed tubes of wire electrodes of metals known to absorb hydrogen and operate them for >100 days at the <1 watt power level using deuterium gas pressures of ~100 torr powered by 40 Khz AC power supplies. Observation of helium will be by measurement of helium optical emission lines through the glass envelope surrounding the discharge. The results of the first 18 months of this effort will be described.

Scott Chubb
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