

Verifications of LENR Observations in Nickel-Copper Alloy (Constantan) and Hydrogen Experiments

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Francesco Celani put on two apparently successful LENR demonstrations in August 2012. They involved nickel-hydrogen reactions using specially-prepared nickel-copper alloy (Constantan) wires and were based on earlier experiments by Celani [1,2]. Both demonstrations were supported by National Instruments (NI) in the form of integrated software and instrumentation.

Celani has shown a strong interest in having other investigators verify his LENR observations. To this end, he has provided samples of his treated Constantan wires to a number of other researchers for verification. NI continues to be supportive of Celani and others who are conducting Constantan-based nickel-hydrogen LENR experiments. A systematic study is underway to identify the various experiments and associated results achieved by investigators who have received Celani's Constantan wires. Preliminary results of the survey may be summarized as follows:

- The effect observed by Celani appears may not be as robust as initially indicated by the positive results in the demonstrations.
- Experiments to verify Celani's findings apparently should begin with replication (as closely as possible) of his equipment, materials, and procedures, followed by carefully adding variables after success (excess heat and/or reduction in electrical resistance) is achieved.
- It appears advisable to recalibrate the Celani reactor each time it is set up for experiments or demonstrations.
- Interpreting reduction in electrical resistance as an indication of hydrogen loading of the Constantan wire must be done carefully; other factors may also affect resistance changes.
- The metallurgy of nickel-copper alloys involved with treated Constantan wire may be more complicated than initially understood.
- Measurement of temperatures (by appropriate number and placement of sensors in and around the reactor) is a critical factor in interpreting results as excess heat.
- Care must be taken in interpreting results that appear not to verify Celani's observations – the cause may lie in an insufficiently similar experimental setup or procedure.

Analysis of experimental results by investigators of Celani's wires and methods continues and will include as many independent attempts at verification as possible.

[1] Celani, Francesco, et al., "Experimental results on sub-micro structured Cu-Ni alloys under high temperatures hydrogen/deuterium interactions", X International Workshop on Anomalies in Hydrogen-Metal Systems, Pontignano, Italy, April 10-14, 2012.

[2] Celani, Francesco, et al., "Cu-Ni-Mn alloy wires, with improved submicrometric surfaces, used as LENR device by new transparent, dissipation-type calorimeter," Proc. 17th International Conference on Cold Fusion (ICCF-17), Daejeon, South Korea, 6 p, August 12-17, 2012.