Verifications of Francesco Celani’s LENR Observations in Nickel-Copper Alloy (Constantan) and Hydrogen Experiments

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Celani Demonstrations, August 2012
- NI Week: Excess heat $^1 \sim 14$ W (CoP $\sim 1.2$)
- ICCF-17: Excess heat $^1 \sim 6$ W (CoP $\sim 1.1$)
- Considerable interest expressed in LENR Community

Overview of Demonstration
- Treated Constantan (Cu-Ni alloy) wire
- Hydrogen (protium, deuterium) gas
- Dissipation calorimeter (Stefan-Boltzmann Law)
- Borosilicate glass, with wire wrapped around mica insulation
- $\sim 57$ W input power $^1$

Celani Reactor/Calorimeter, ICCF-17, August 2012

Important Parameters
- Excess heat
- Electrical resistance reduction (hydrogen loading)
- Treated wire properties (material properties, elemental composition)
- Supplemental: radiation, transmutation

Celani Provided Samples to Investigators for Verification

Objectives of NI-UT Initiative
- Document Celani wire experiments for verification
- Identify lessons learned and best practices

Six Entities Investigating Celani Constantan Wires
1. Sidney Kimmel Institute for Nuclear Renaissance (SKINR)
   - Excess heat not observed
   - Resistance reduction possibly observed
   - Celani-type layering not observed
   - Probable non-verification

2. Martin Fleischmann Memorial Project
   - Excess heat possibly observed
   - Resistance reduction observed
   - Wire layering observed
   - Probable verification

3. Ubaldo Mastromatteo
   - Excess heat observed
   - Resistance reduction observed
   - Wire layering observed
   - Verification

4. Larry Forsley
   - Excess heat not observed
   - Resistance reduction possibly observed
   - Celani-type layering not observed
   - Probable non-verification

5. Chava Energy
   - Excess heat not observed
   - Resistance reduction observed;
     not attributed to H$_2$ loading
   - Celani-type layering not observed
   - Probable non-verification

6. Idrocell (Reactor Cell under Construction)

Summary of Verification Results

<table>
<thead>
<tr>
<th></th>
<th>SKINR</th>
<th>MFMP</th>
<th>Ubaldo</th>
<th>Forsley</th>
<th>Chava</th>
<th>Idrocell</th>
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<tbody>
<tr>
<td>Excess Heat</td>
<td>N</td>
<td>P</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>NA</td>
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<tr>
<td>Resistance Reduction</td>
<td>P</td>
<td>Y</td>
<td>Y</td>
<td>P</td>
<td>P</td>
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<tr>
<td>Wire Properties</td>
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<td>Y</td>
<td>Y</td>
<td>N</td>
<td>N</td>
<td>NA</td>
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<tr>
<td>Overall Verification</td>
<td>Pn</td>
<td>Pv</td>
<td>Y</td>
<td>Pn</td>
<td>Pn</td>
<td>NA</td>
</tr>
</tbody>
</table>

Y=Yes, N=No, P=Possible, Pv=Probable Verification, Pn=Prob Non-Verification

Lessons Learned/Best Practices
- LENR not as robust as indicated in demonstrations
- Experiments begin with replication, then proceed to reproducing effect
- Reactor-calibration calorimeter needs verification (e.g., mass flow)
- Metallurgy of treated Constantan more complicated than thought
- Proper temperature profile essential for accurate calorimetry
- Lack of verification in this survey does not negate possibility of LENR