

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

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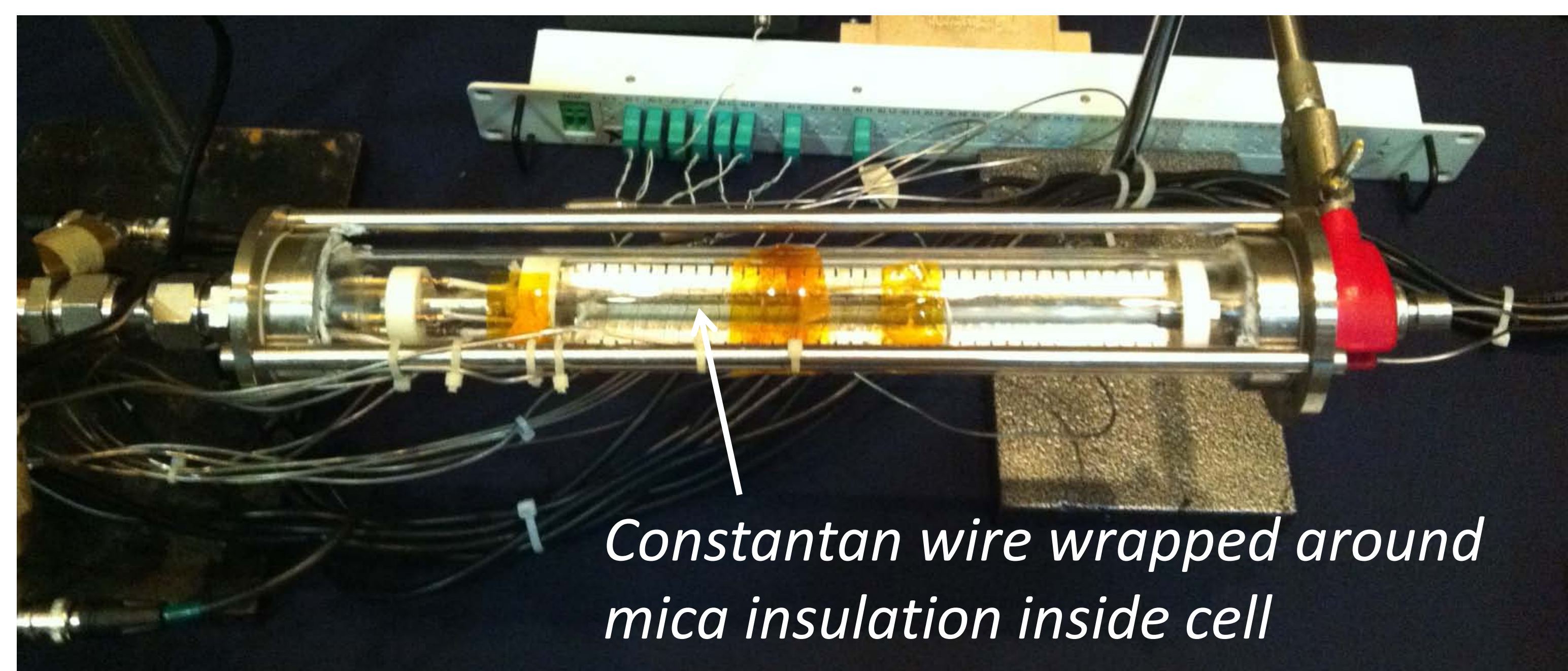
## Celani Demonstrations, August 2012

- NI Week: Excess heat<sup>1</sup> ~14 W (CoP ~1.2)
- ICCF-17: Excess heat<sup>1</sup> ~6 W (CoP ~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
- ~57 W input power<sup>1</sup> <sup>1</sup>Input power corrected ~15% after demos

## Celani Reactor/Calorimeter, ICCF-17, August 2012



Constantan wire wrapped around mica insulation inside cell

## 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

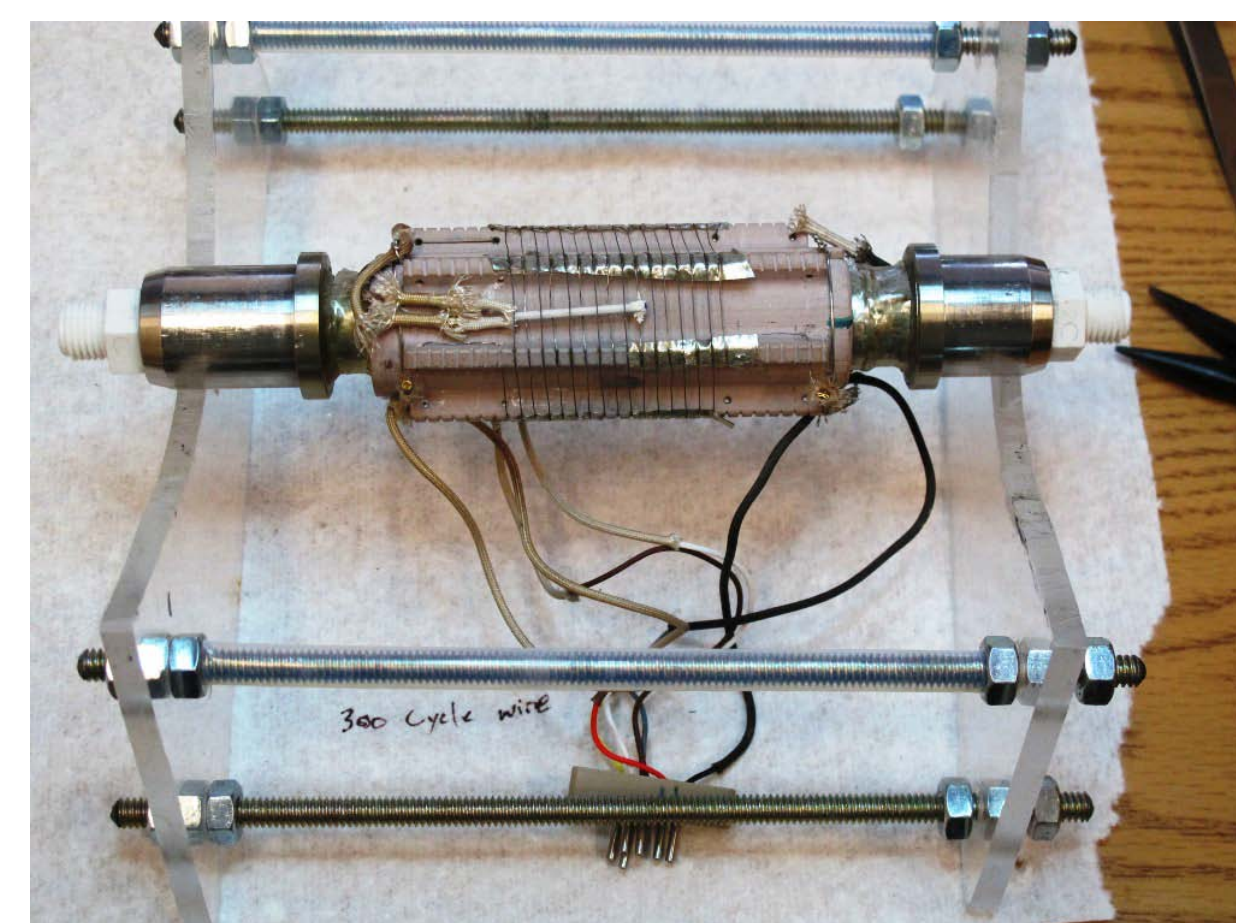
### Objectives of NI-UT Initiative

- 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)

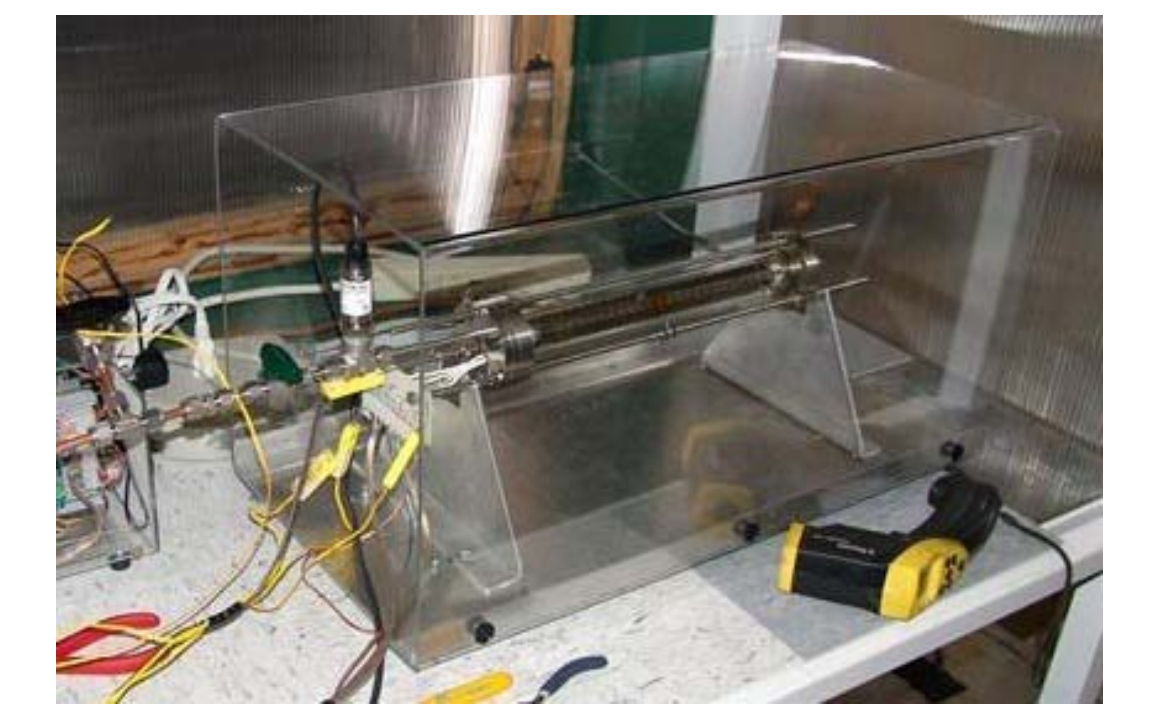
- Excess heat not observed
- Resistance reduction possibly observed
- Celani-type layering not observed
- **Probable non-verification**



SKINR cell core with internal flow for calorimeter

### 2. Martin Fleischmann Memorial Project

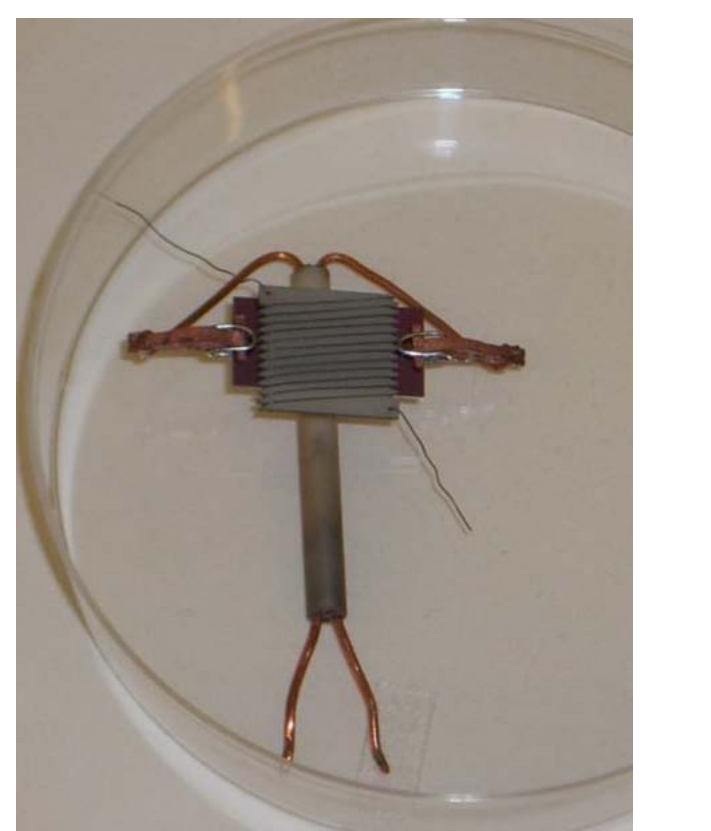
- Excess heat possibly observed
- Resistance reduction observed
- Wire layering observed
- **Probable verification**



MFMP cell #1 for Celani replication

### 3. Ubaldo Mastromatteo

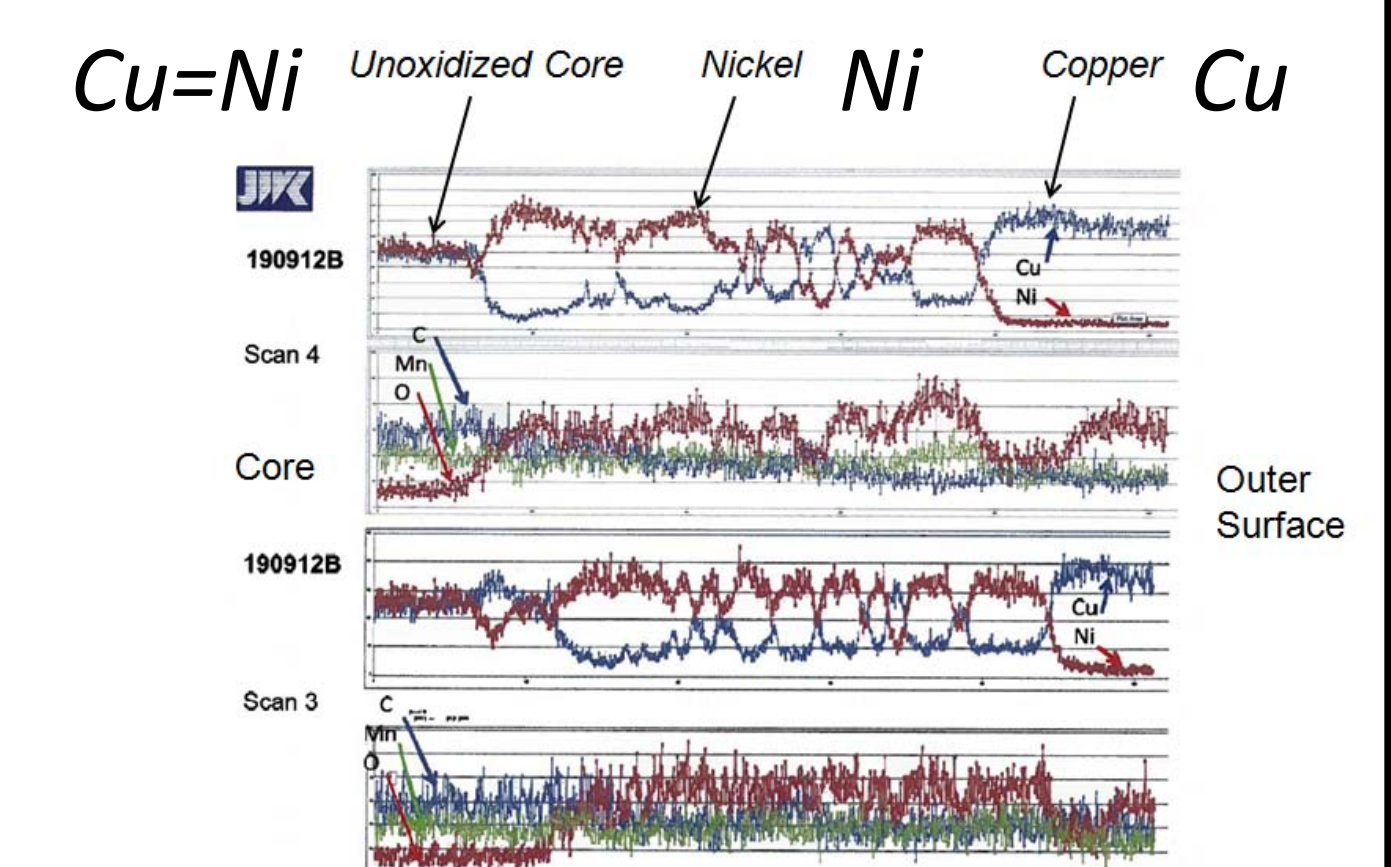
- Excess heat observed
- Resistance reduction observed
- Wire layering observed
- **Verification**



Ubaldo cell with adjacent ceramic heater

### 4. Larry Forsley

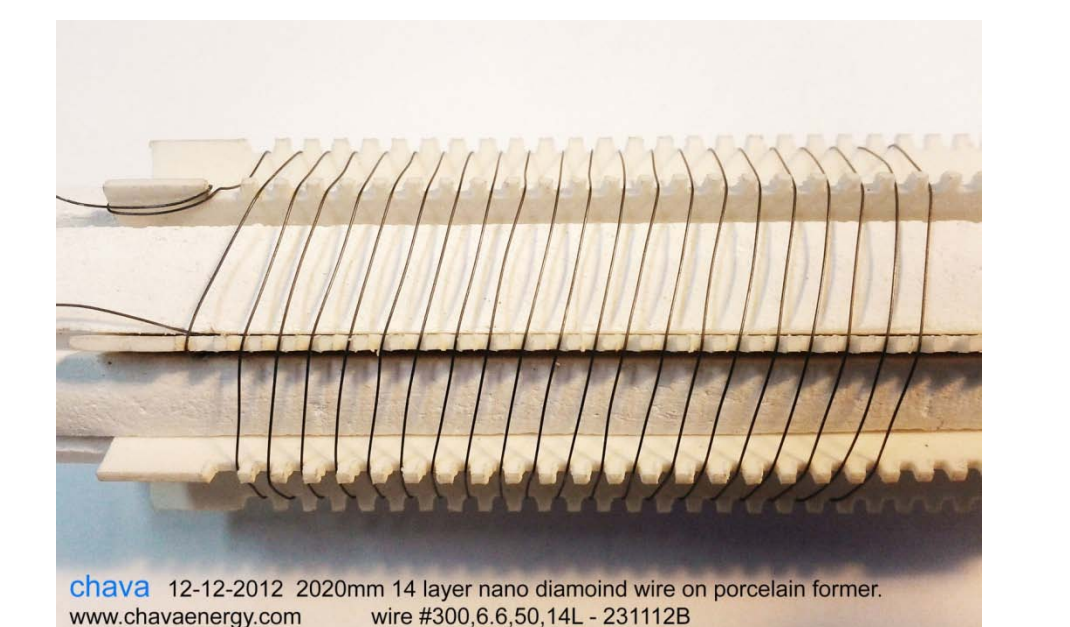
- Excess heat not observed
- Resistance reduction possibly observed
- Celani-type layering not observed
- **Probable non-verification**



Forsley analysis of layers' composition

### 5. Chava Energy

- Excess heat not observed
- Resistance reduction observed; not attributed to H<sub>2</sub> loading
- Celani-type layering not observed
- **Probable non-verification**



Chava ceramic cell core with wound wire

### 6. Idrocell (Reactor Cell under Construction)

## Summary of Verification Results

	SKINR	MFMP	Ubaldo	Forsley	Chava	Idrocell
Excess Heat	N	P	Y	N	N	NA
Resistance Reduction	P	Y	Y	P	P	NA
Wire Properties	N	Y	Y	N	N	NA
<b>Overall Verification</b>	Pn	Pv	Y	Pn	Pn	NA

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
- Dissipation-type calorimeter needs verification (e.g., mass flow)
- Reactor calibration required with each experimental setup
- Resistance reduction may be influenced by factors besides H loading
- 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