

Public Interest Arguments for Cold Fusion Policy Change

CMNS Research Community Opportunities

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ICCF-14, Washington, D.C., August 2008

In Pursuit of Cold Fusion Policy Change

- A. Place the acceptance issue on a par with CMNS science
- B. Invoke the Public Interest in cold fusion success
- C. Argue for rational policy framework
- D. Establish cold fusion Level of Evidence
 - Preponderance of Evidence, or
 - Clear and Convincing Evidence, or
 - Beyond a Reasonable Doubt
- E. Assert policy response to cold fusion evidence
 - Reinstate as legitimate science, or
 - Support on par with hot fusion, or
 - Institute crash program)
- F. Pursue promotional opportunities
 - Go to policymakers and public as well as scientific establishment
 - Emphasize the public interest

A. Embracing the Cold Fusion Acceptance Issue

- Place on a par with CMNS science research & reporting
- Recognize necessity of promotional stance
- Incorporate in research forums for CMNS community (e.g., ICCF-x)
- Publish in journals on research ethics, sociology of science, & public policy
- Spotlight failure of scientific process in CF rejection (only as needed)

B. The Public Interest in Cold Fusion

- Well accepted from the outset
- Potential source of very low-cost energy
- Environmentally benign energy source (no radiation, greenhouse gases)
- Possible elemental transmutation
- New science: unknown other benefits:

C. Rational Policymaking Framework

- Asserts that the Public Interest is best served by rational policymaking
- Rooted in Evidence-based medicine
- Focus is on “What makes sense” or “What works” (pragmatic)
- Not ideological, less focus on political
- Set public policy based on Level of Evidence

D1. Levels of Evidence (LoE): Legal Connections

| <u>Level</u> | <u>Probability</u> |
|--|--------------------|
| Low | <10% |
| Moderate | 10-50% |
| Preponderance of Evidence ¹ | 50-70% |
| Clear & Convincing Evidence | 70-90% |
| Beyond a Reasonable Doubt ² | >90% |

¹Civil Law ²Criminal Law

D2. Establishing the Level of Evidence for Cold Fusion: Four Perspectives

1. Early verification: excess heat
 - From *Beaudette, 2002*
 - Miles, 1991 ·Arata, 1991-94
 - Huggins, 1989-90 ·Oriani, 1989
 - McKubre, 1990-91
2. Overwhelming evidence since 1989
 - From *Storms, 2007*
 - Excess heat: 184 reports
 - Radiation: 55 reports
 - Transmutation: 77 reports
3. Particularly convincing experiments (examples)
 - Mizuno, 2005*: laboratory explosion
 - Arata, 2008*: public demonstration of replication
4. Bayesian Network analysis
 - From *Johnson & Melich, 2007 and Cravens & Letts, ICCF-14, 2008*
 - POE established with Fleischman & Pons
 - CCE reached after four experiments post F&P
 - BRD established after only eight experiments
 - Eighth experiment performed by end of 1990

D3. Cold Fusion Levels of Evidence: the Bottom Line

- At least a Preponderance of Evidence (>50%) based on four perspectives
- Excellent case also for Clear & Convincing Evidence (>70%)
- Bayesian Analysis: Beyond a Reasonable Doubt (>90%) established within four verifications

E. Rational Policy Responses to the Evidence for Cold Fusion

- Conservative Policy Scenario
 - POE: Reinstate as legitimate science
 - CCE: Support on par with hot fusion
 - BRD: Institute crash program (akin to Manhattan Project)
- Moderate Policy Scenario (up a notch)
 - POE: Support on par with hot fusion
 - CCE: Institute crash program
 - BRD: Institute crash program

F. Summary: Researcher Opportunities for Achieving Cold Fusion Policy Change

- Articulate the public interest in cold fusion
- Advocate rational policymaking
- Assert high levels of evidence of cold fusion reality: **POE, CCE, BRD**
- Advocate appropriate policy responses for levels of evidence
- Go beyond scientific forums
- Dialogue with policymakers directly
- Be prepared to spotlight past failures in scientific process (if/when necessary)

Postscript: Will Cold Fusion Prove to Be a Paradigm-Shifting Event (per Kuhn)?

–But that’s another story...

