

Cold Fusion and Nuclear Non-Proliferation

Joseph Peter Guokas

Joeguokas@aol.com

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Purpose

Cold Fusion / LENR is reviewed in search for observations that, if confirmed, might impact nuclear non-proliferation.

Limiting Factors Preventing Proliferation Hazards

- Low reaction rates without a reactor
- Inaccessibility of fissile materials
- Inaccessibility of strong neutron source
- Frailty of Nuclear Active Environment
- Limited, known list of reactions for:
 chaining, materials, neutrons

Could CF Make Limiting Factors Less Certain?

We will look at each limiting factor
individually.

Frailty of NAE

There are many examples of Heat after Death, and particles passing through barriers before reacting. This suggests precursors which can form in a NAE, reacting at a different time or location. So reactions could take place outside the NAE.

Limit: Known List of Reactions

Many cases of unusual channels in CF:

He/t/n ratios in classical CF

Multibody reactions (Iwamura, Kasagi)

Unusual fission reactions

Transmutations

Limit: Known List of Reactions

CF reaction products appear to depend on:

impurities

surrounding matrix

types of stimulation

So we probably have not seen all the possible
CF products yet.

Limit: Known List of Reactions

CF Mechanism not understood, so we don't know that all possible CF anomalies have now been seen.

Limit: Low Reaction Rates

Brief episodes of higher rates suggest average rates could be made higher:

neutron bursts

x-ray bursts

heat bursts

Limit: Low Reaction Rates

No critical chain reaction seen, but some suggestions of chaining to explore:

- neutron stimulation (Shani)

- neutron bursts

- energetic p or other particles, that can indirectly provide neutrons

- general broadening of possible reactions

Limit: Inaccessibility of Materials

- Unusual 2D, 3D, 4D, 6D reactions broaden the range of elements from which other elements can be made.
- Loosening the limit on the known list of reactions will generally broaden the range of elements from which other elements can be made.

Limit: Inaccessibility of n Source

- Neutron bursts
- Energetic p and other particles that might provide neutrons in secondary reaction

Conclusion

No proliferation impact is seen at this point.

However, CF anomalies make some limiting factors less certain.

Until more is learned about all the variations in the anomalies, we can't know if the limiting factors will be breached. There are reasons to think we have not yet seen all the variations in the anomalies.

Open Letter to Discoverer of Any Cold Fusion Breakthrough

- A suggestion to researchers of what to do if about to make breakthrough will be put on the LENR-CANR web site.
- Critical comments can be emailed to Joeguokas@aol.com to be included in commentary on letter at LENR-CANR site.

Open Letter to Discoverer of Any Cold Fusion Breakthrough

Very briefly, letter suggests researcher do two things:

- (1) Notify own government before publishing
- (2) Explain to own government why it would be in its own best interest to share this information with other major powers.