



# THE LEC DEVICE – EXPLORING THE PARAMETER SPACE

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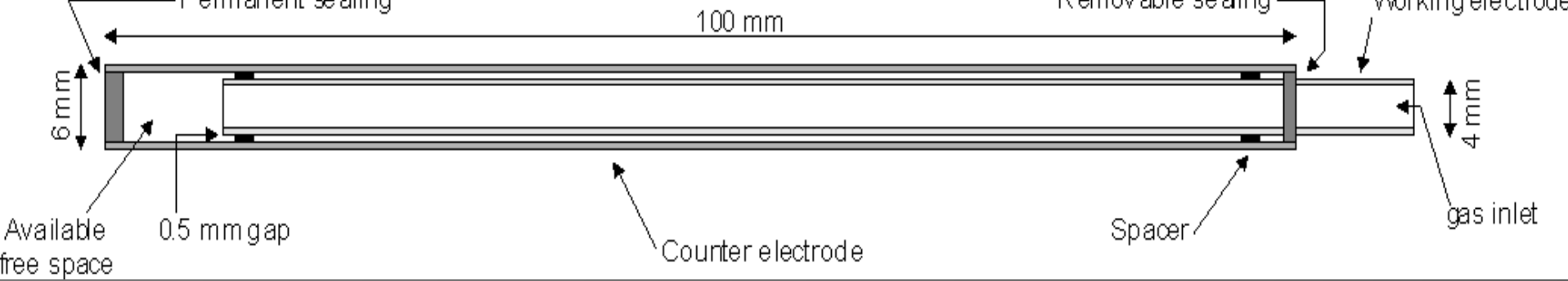
# WHAT IS A LEC?

To (loosely) quote Frank Gordon/Harper Whitehouse, a LEC:-  
Spontaneously produces ionizing radiation and electrical energy based on the thermal energy in its hydrogen or deuterium occluded lattice.

Produces sustained ionizing radiation and electrical output when the lattice material is in fluidic contact with a gas.

Does not require radioactive materials.

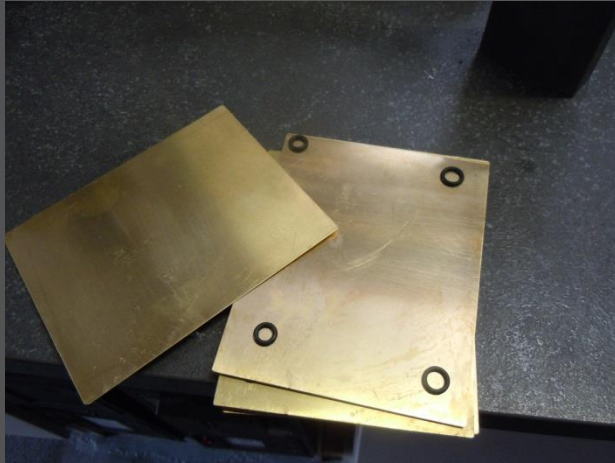
Easy to replicate and simple to construct and test but the physics of it is not fully understood.



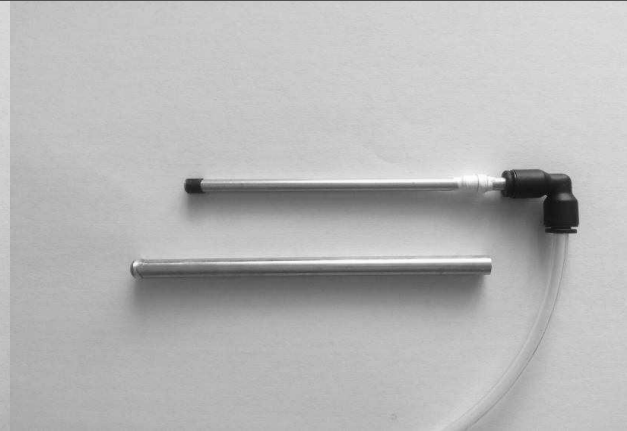
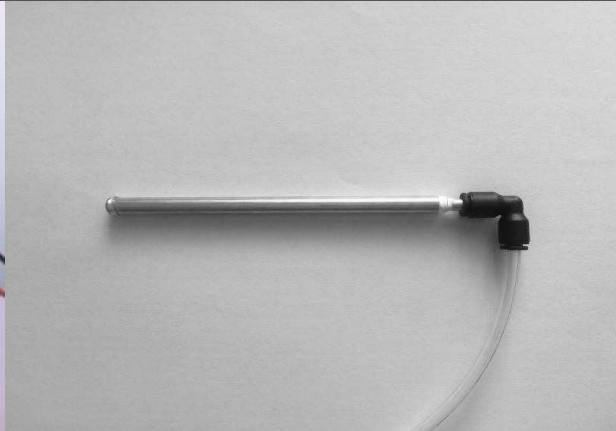
↑ LEC – Design (Di Stefano) : ↓ LEC Construction Gordon/Whitehouse.



# FORM FACTORS- PLATES OR TUBES?



Above – NZS, stacked brass plates: Below- Di Stefano tubes



# OTHER KINDS OF LEC.



I realised that the LEC was a rugged enough system not to need co-deposition or a closed tube and used different methods, flat plates and powder electrodes work and can be tested in air.



## BREAKING THE RULES?

Do Working Electrodes (WE) need to be Pd or Fe?	NO
Are exotic metals or gases required?	NO
Is co-deposition an absolute requirement?	NO
Are dangerous/costly electrolytes required?	NO
Do you need heavy water to make it work?	NO
Do WE and CE need divergent work functions?	NO
Has radioactivity been detected from a LEC?	NO
Is the LEC safe and simple to replicate?	YES
Is a positive result easy and cheap to detect?	YES
Could students build a LEC?	YES



## MARMALADE JAR Ni/Ni LEC

THE JAR CONTAINS A CIRCULAR NICKEL FOAM COUNTER ELECTRODE AROUND THE OUTER DIAMETER. INSIDE THAT IS AN INSULATING CYLINDER OF STIFF NYLON FLY-SCREEN MESH. THE CENTRAL WIRE IS SOLDERED ONTO ANOTHER PIECE OF NICKEL FOAM, A WORKING ELECTRODE ELECTROLYSED IN D/W AND  $K_2CO_3$  USING A CARBON ANODE FOR 48Hrs. 3.5V 1W INPUT. NO CO-DEP, NO MAJOR WORK FUNCTION DIFFERENCE, NO HYDROGEN GAS – MEASURED IN AIR – THE EFFECT DECLINES BUT LASTS FOR OVER A WEEK

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# WHAT WORKED, AND WHAT DID NOT.

WE - Cathode	Anode	Counter Electrode	Electrolyte	T (hrs)	V1 mV T+2h	V2 mV T+24h
Aluminium Plate	Carbon Rod	Aluminium Plate	K <sub>2</sub> CO <sub>3</sub>	48	120	24
Aluminium Plate	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	144	21
Carbon Rod	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	0	0
Ferrocium (soft)	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	610	444
Ferrocium (hard)	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	340	120
Nickel Plate	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	240	188
Nickel Foam/Mesh	Carbon Rod	Nickel Foam/Mesh	K <sub>2</sub> CO <sub>3</sub>	48	314	163
Nickel Foam/Mesh	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	342	226
Lead Plate	Lead Plate	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	0	0
S/Steel (304) Plate	Zinc	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	10	3
Ti (Powdered)	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	5	0
Terbium Chips	Lead Plate	Lead Plate	K <sub>2</sub> CO <sub>3</sub>	48	462	355
Zirconium Plate	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	0	-
SmCo Powder	Lead Plate	Lead Plate	K <sub>2</sub> CO <sub>3</sub>	48	0	-
Samarium Plate	Carbon Rod	Zinc Plate	K <sub>2</sub> CO <sub>3</sub>	48	330	212

# WHAT DOES IT DO?

- The closer the WE/CE are the higher the output, The best spacers are both thin, and porous, lightweight fly-screen nylon mesh being the most effective separator tested so far.
- Impervious film –like polythene- cuts output to zero.
- The table is of interest, it shows output vs time for a WE/CE pair in air after short circuiting with an earthed wire, the intention being to drain away stray charges etc.
- This is not galvanism, but some other little-known effect cannot be ruled out entirely, tests are eliminating them one by one.
- Is it scale-able by the 14 orders of magnitude Frank Gordon hopes it is? Maybe.

TIME – Secs	Output - mV
0	100 (instantly)
30	140
60	132
90	146
120	152
150	158
180	152



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# THANKS FOR STAYING AWAKE !

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More discussion, experiments, arguments and commentary about the LEC can be found on [LENR-Forum.com](http://LENR-Forum.com). The public face of cold fusion.