

Condensed Plasmoids (CPs)

**New Evidence of an Ultra-Dense
State of Matter in LENR Experiments**

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The CP Research Group

- Lutz Jaitner:** Physicist, hardware & software developer
- Erwin Roth:** Engineer in robotics and embedded systems
- Claus Anderson:** Engineer, big data scientist
- Clemens Veit:** Physicist, R&D of renewable energy, vacuum tech.
- Alexander Rieder:** Physicist, consultant for research funding
- Simon Fischer:** Mechatronics, industrial control programmer
- Jerry Robinson:** Engineer in gas turbine design
- Manuel Ribul:** Mechatronics, mechanical design

The Basic Concept of Condensed Plasmoids (CPs)

Maximum magnetic field of a z-pinched plasma filament:

$$|B|_{\max} = \frac{\mu_0}{2\pi} \frac{I}{r_0}$$

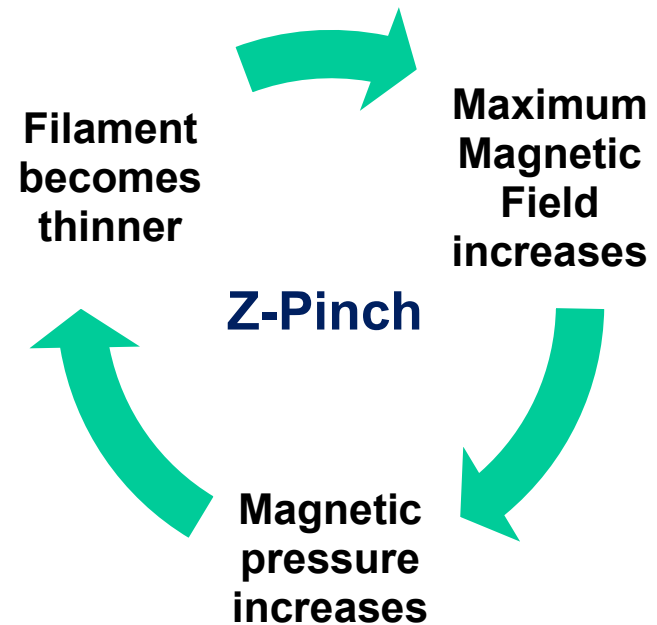
Singularity if wire radius r_0 approaches zero!

If temperature is low, matter will collapse in a z-pinch!

Density only limited by quantum mechanics, enabling nuclear tunneling.

Please refer to the detailed modelling from 2019:

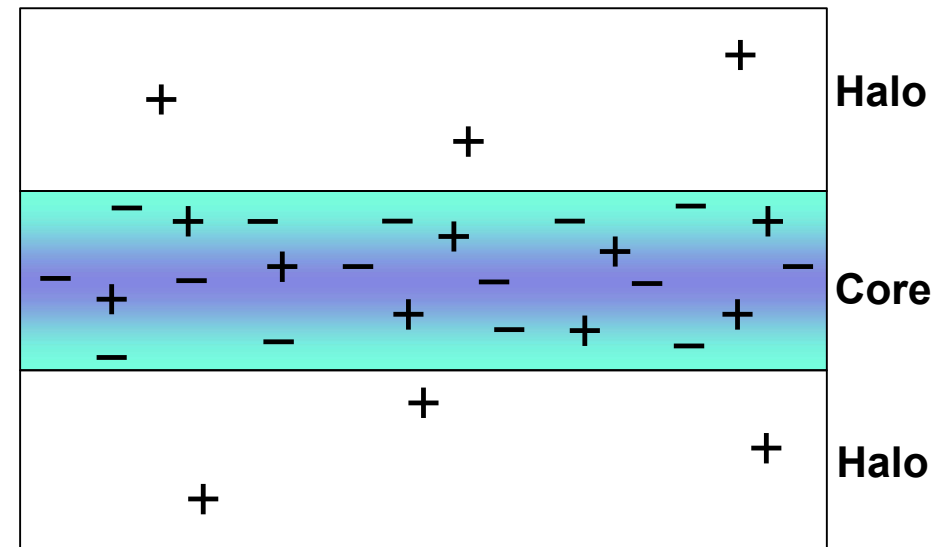
http://condensed-plasmoids.com/condensed_plasmoids_lenr.pdf



Basic Structure of a CP

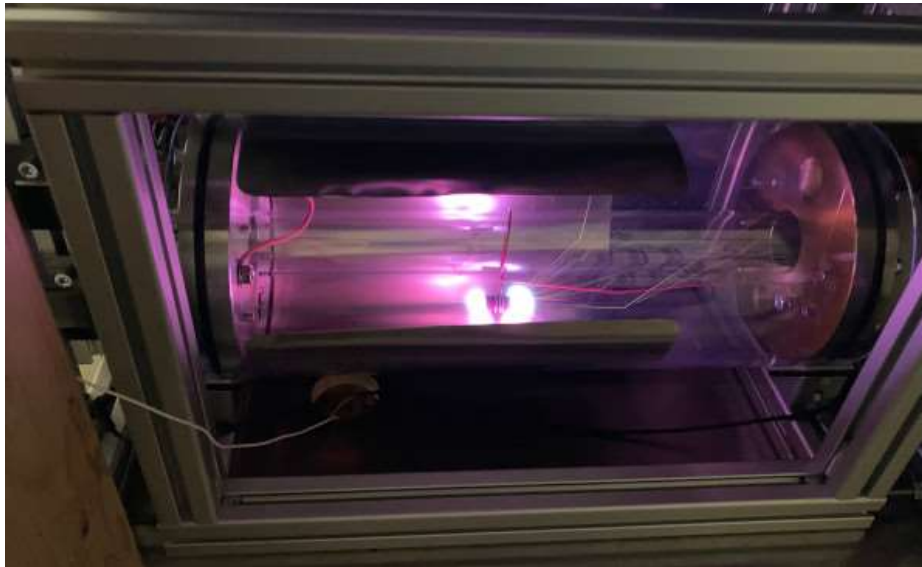
- Thin cylindrical plasma channel
- CP core consists of delocalized electrons and fully ionized nuclei
- Core electrons have high axial velocity against the nuclei
- Core has excess negative charge
- CP “halo” (positive ions) compensates the negative charge
- Halo current can flow in same or opposite direction to core current

Axial CP Cross Section



Experimental Setup

Reactor Chamber



Pulse Electronics



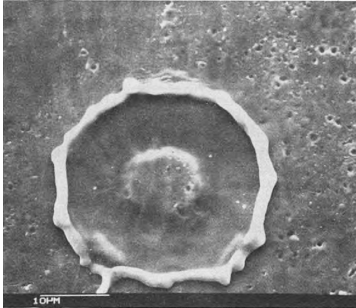
Pressure: 0.1 to 50 mbar
Voltage: 2.3 kV
Current: Up to 400 A

Pulse Rate: Up to 1 MHz
Pulse Duration: 0.1 to 5 μ s
Discharge Path: Up to 40 cm

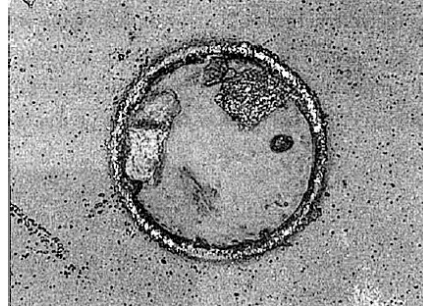
Mean Power:
Up to 300 W (currently)
Up to 8 kW (next year)

Ring Shapes as Evidence of CPs

Ken Shoulders:

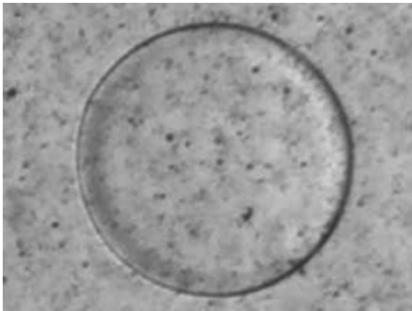


Takaaki Matsumoto:

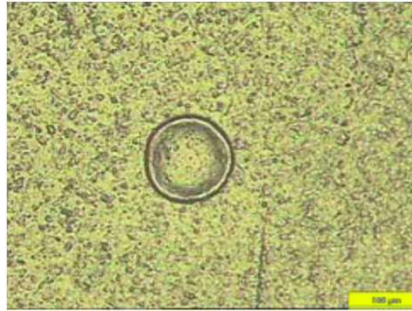


Very many of these rings have been observed in our experiments

Claude Daviau:



Rodinov/Savvatimova:



Many other shapes of CPs occur

Experimental Findings

- **CPs can be easily created by high-voltage pulses** ★
 - 100 % reproducibility, requires at least 10 mJ of energy
- **CPs have less than 1 Ohm resistance over 40 cm path length** ★
- **CPs have can have up to 5 μ H inductance (halo) in our reactor** ★
- **CPs can carry up to several kA of current** ★
- **CPs establish a conductive path between the electrodes**
 - These paths can last for up to 60 ms after the end of the pulse
 - The paths disrupt immediately, if current is reversed
- **CPs can be created in all sorts of gases** ★
 - They achieve longevity only, if the gas supports nuclear fusion ★
 - There is a nuclear energy feedback to the electron current ★
- **LENR is possible without hydrogen and without metal** ★
 - Fusion indicated by longevity of the CPs
 - For example, LENR works with air

★ =
as predicted
in 2019

A Paradigm Shift in LENR Research Is Overdue

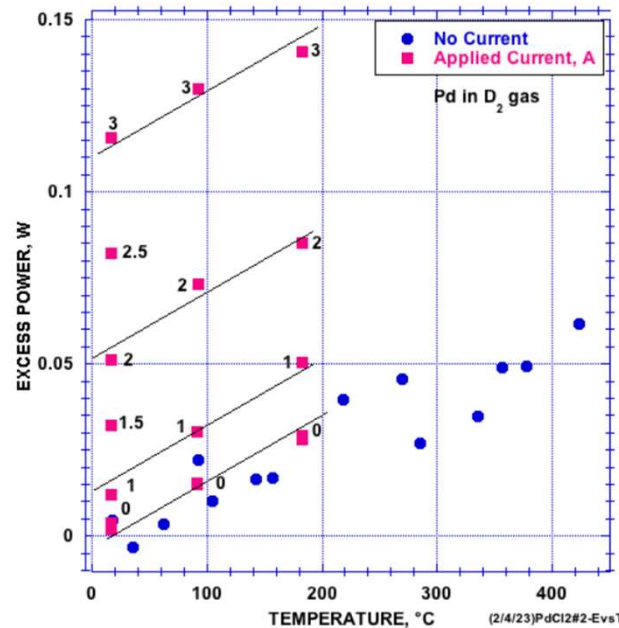
- **After 35 years of LENR research the dominant working assumptions are still:**
 - That LENR either must happen in a metallic lattice
 - Or that LENR must happen at the surface (→ nano-powder)
 - Helium-4 is believed to be the result of d-d fusion (but what about protium?)
- **The CP Research Group believes, that the said assumptions are incorrect**
 - An increasing amount of evidence for the role of plasma in LENR arises from both, the CP theory, and our experimental findings
- **Did you know**
 - that LENR can happen in low-pressure gases?
 - that He-4 can be created by a vast variety of LENR reactions other than d-d?
 - that palladium deuteride contains a plasma (mobile d and e) waiting for a current to ignite CP condensation?
 - that a hydrogenated nickel surface carries a two-dimensional plasma (mobile p and e) waiting for a current to ignite CP condensation?

A Hint of Truth from Edmund Storms

Deuterium-gas-loaded palladium produces excess heat, which significantly increases when a current is sent through the metal sheet.

Is the current causing CP condensation?

Reference: [Storms, Edmund 2024: "A new Understanding of Cold Fusion", Kiva PdLabs](#)



Excess heat production



Pd Strip

Condensed Plasmoids

There Is No LENR Without Plasma!

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