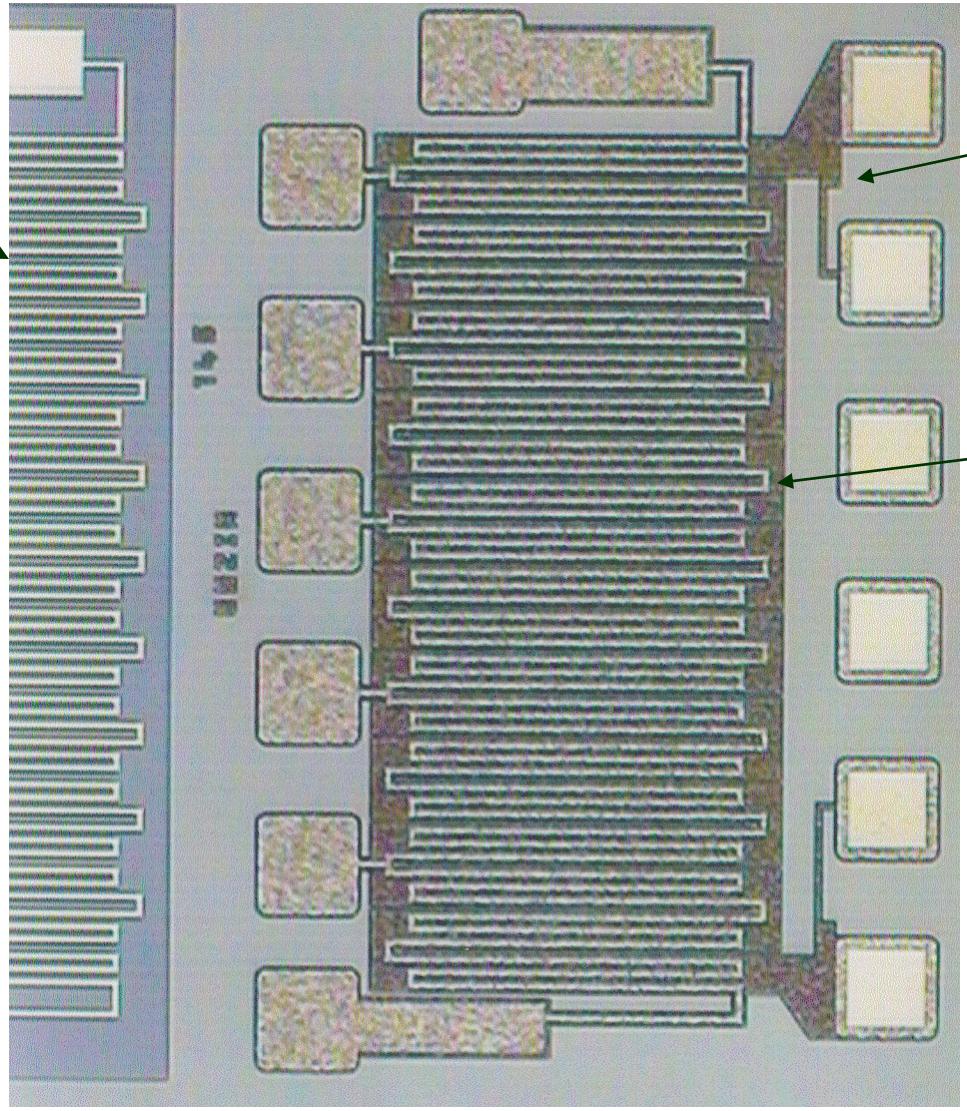
Esperimenti di base per la comprensione dei fenomeni nucleari a bassa energia (LENR).

Ubaldo Mastromatteo - LECCE – 28 maggio 2002

Sommario

- Microcelle a matrice di Nichel
- Sorgente solida e gassosa
- Amplificatore di Energia
- Minicella a matrice di Nichel, Palladio, Titanio
- Esperimento di don Borghi
- Conclusioni

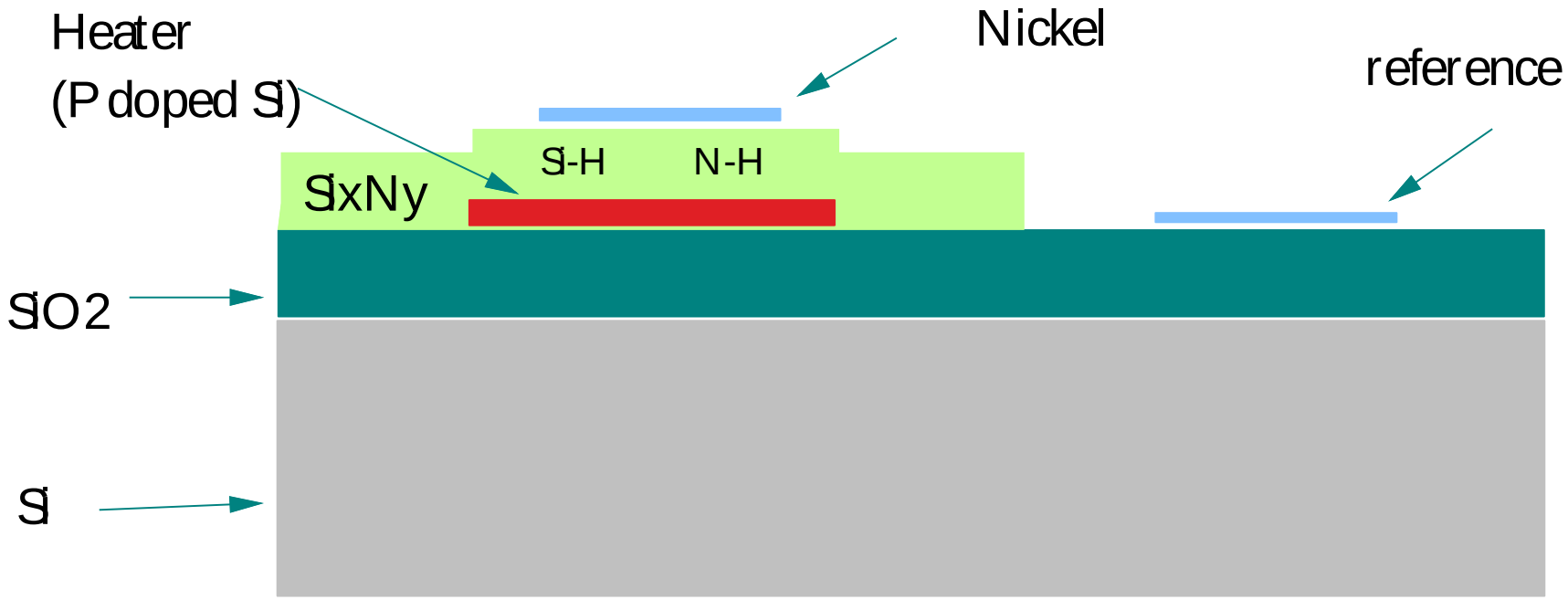
Resistore di
Nichel su ossido



Resistore di silicio
Policristallino (heater)

Resistore di nichel
Su nitruro di silicio
Ricco di idrogeno

Cross section of cell structure



Nickel th=0.1μ W=10μ

Heater th=0.5μ W=50μ

SiO2 th=2μ

SixNy th=2μ

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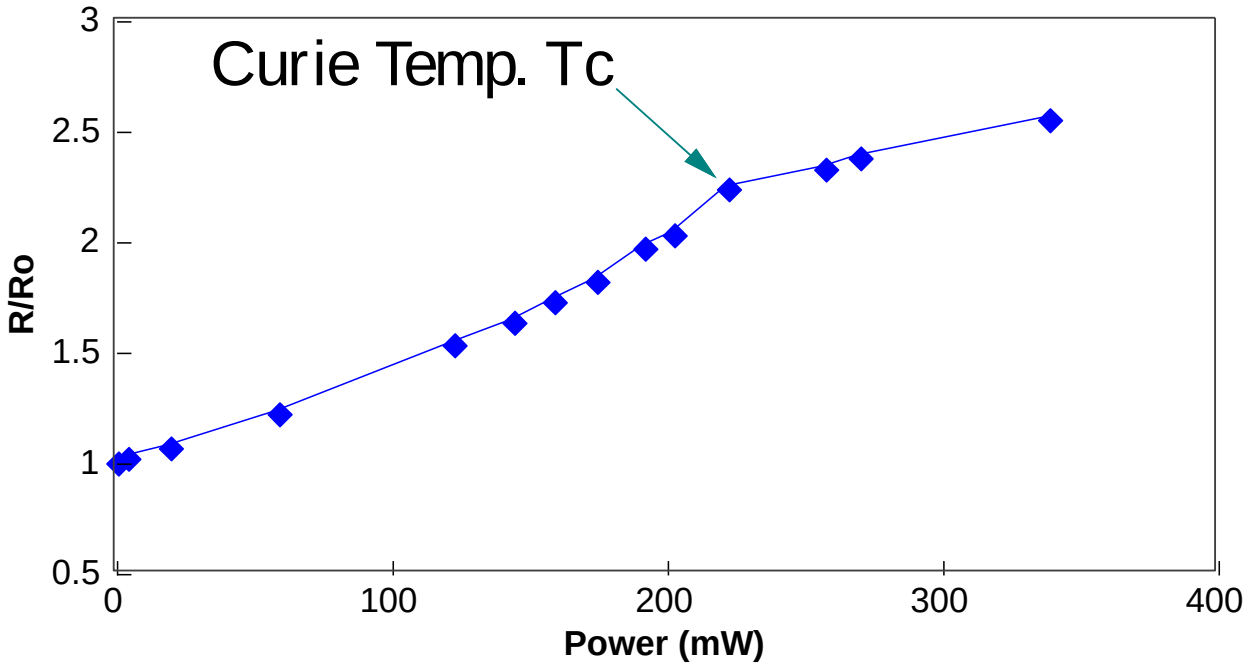
Nickel R/Ro versus temperature



Rth=Tc-To/Pwc T=PwRth + To

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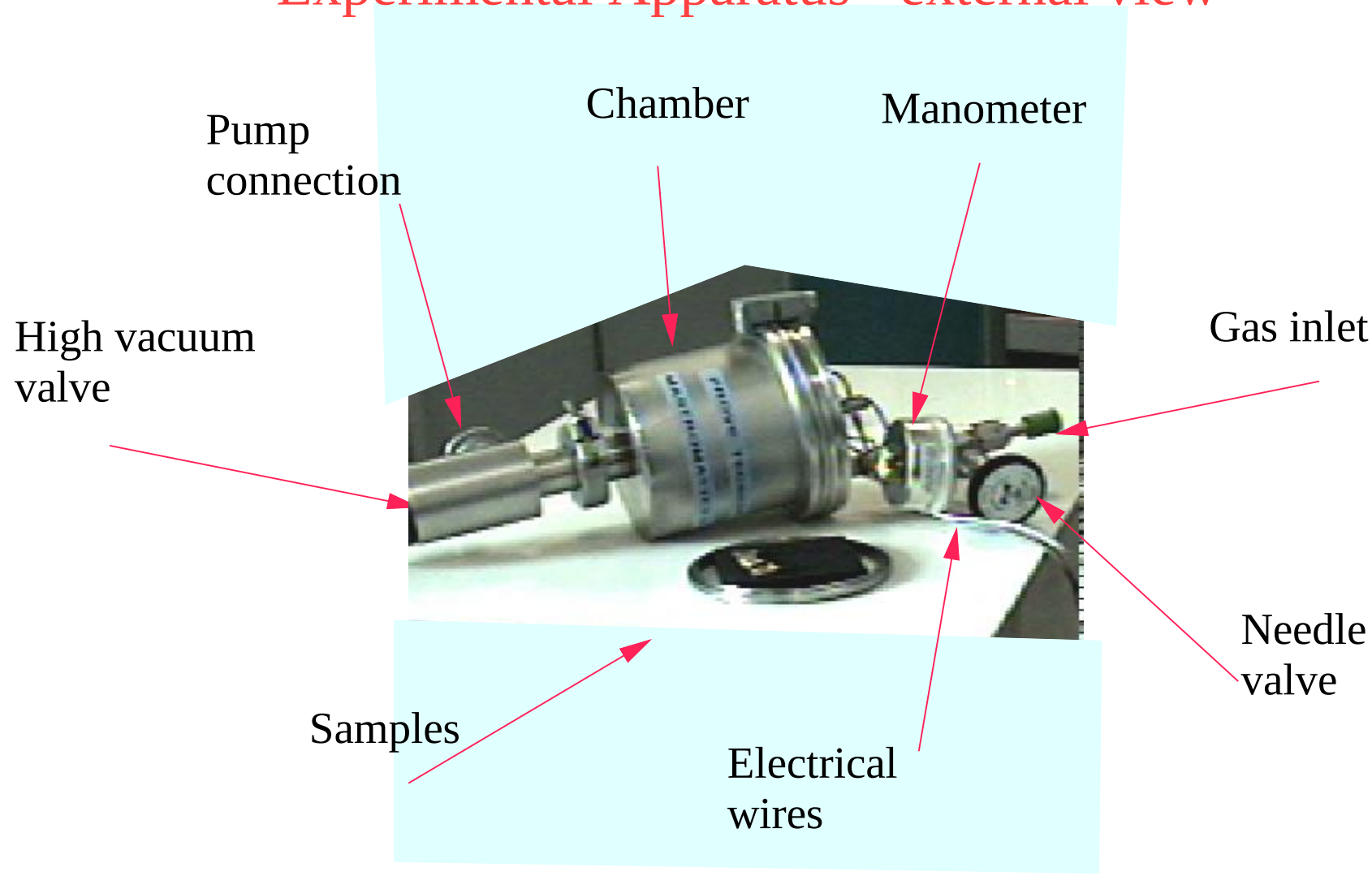
Experimental Apparatus - external view



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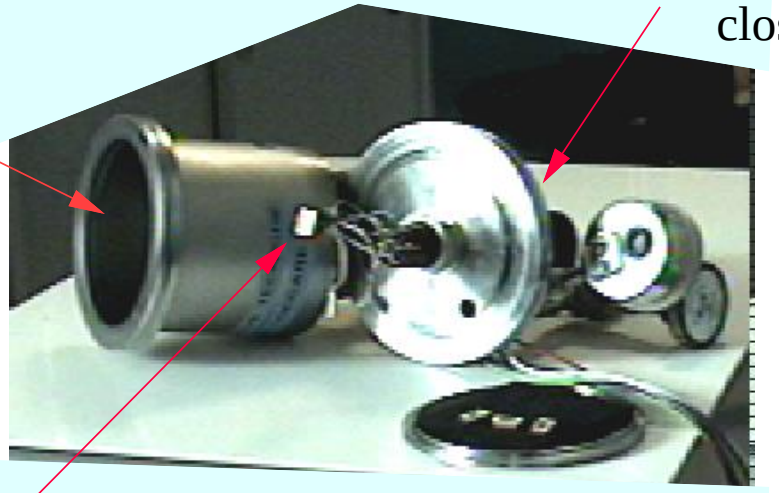
Experimental Apparatus
open chamber internal view



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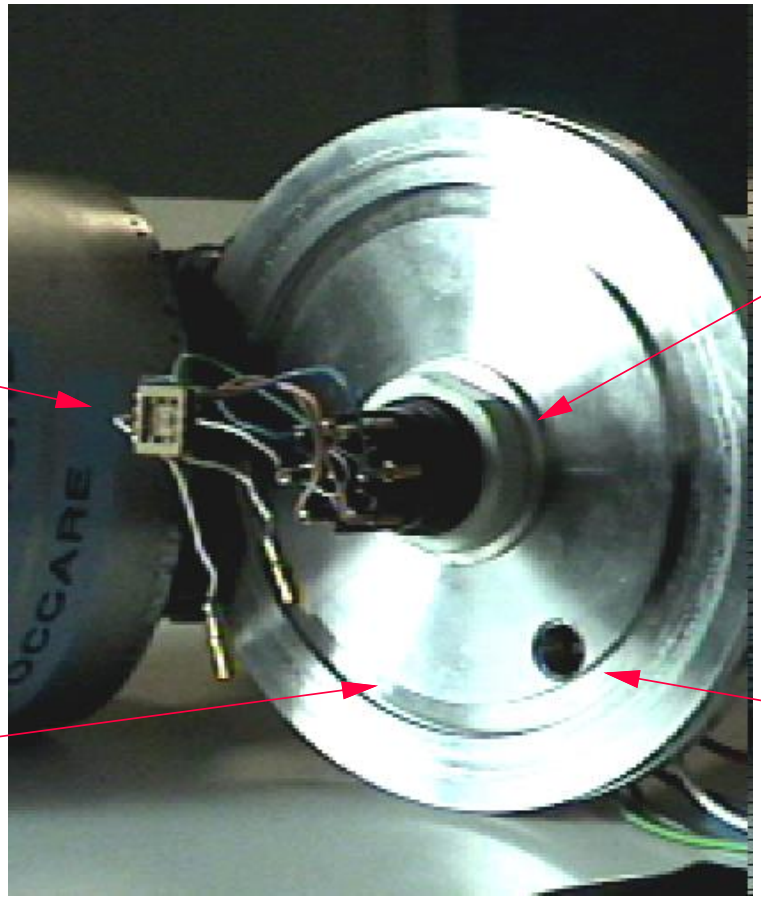
Experimental apparatus
chamber closure plate with sample in place



Sample in place to be tested

High vacuum electrical pass-trough connection

Groove for high vacuum O-Ring

Gas inlet orifice

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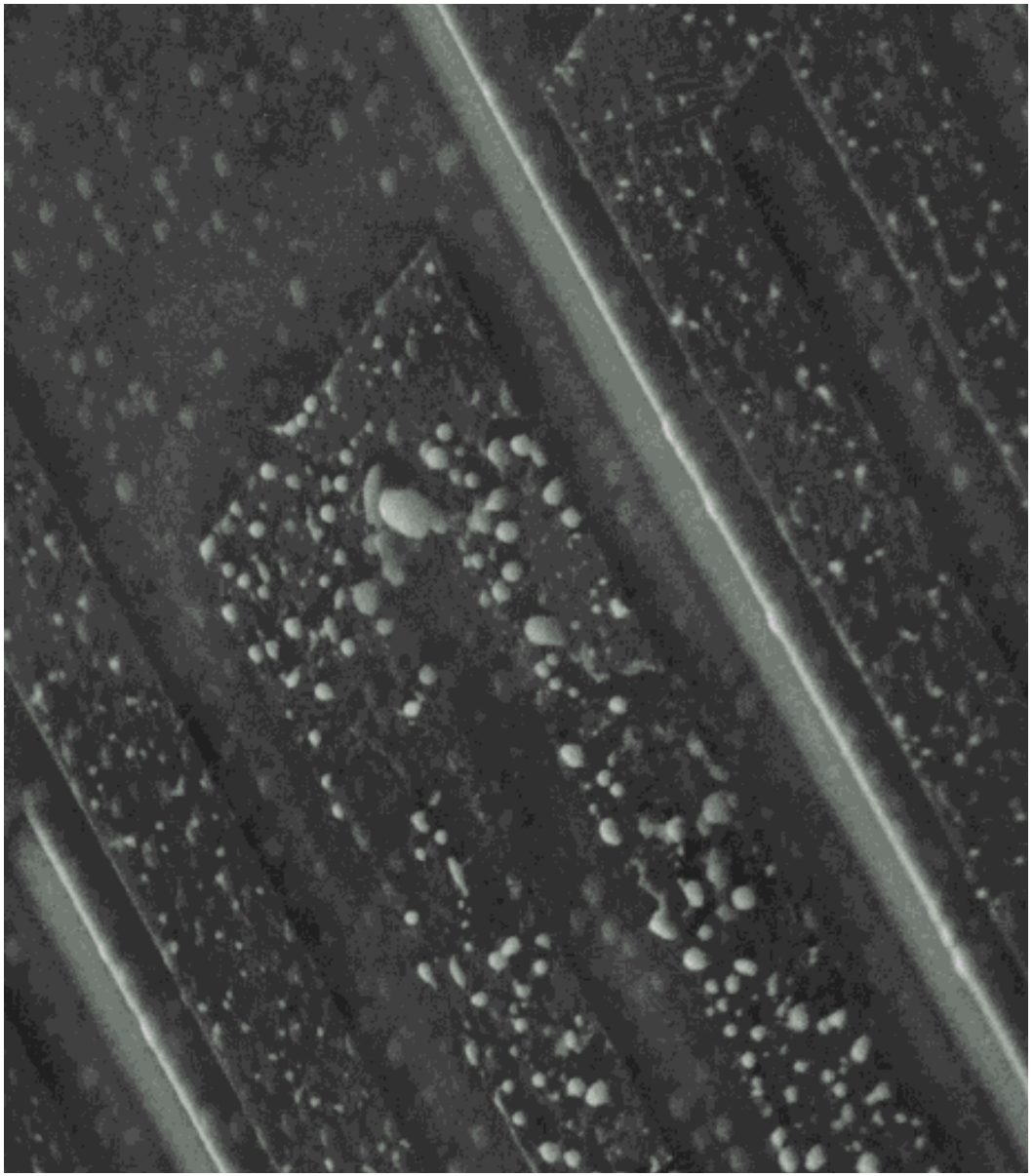
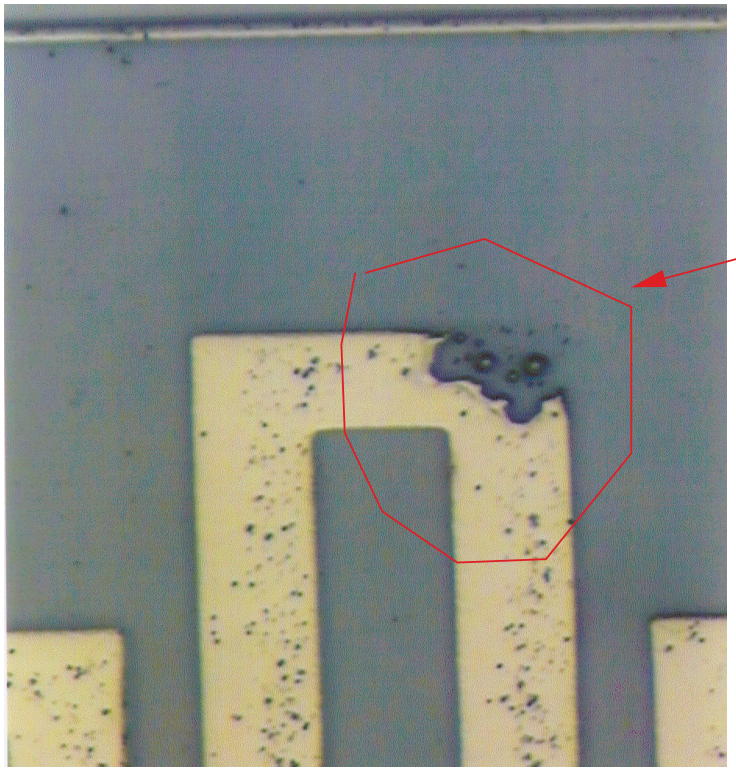


Resistore di nichel su nitruro
Dopo alcune ore di permanenza
Ad una temperatura di circa 450
Gradi.

High temperature spot melts the Nickel layer



Melted area on the reference resistor using H2 gas source.

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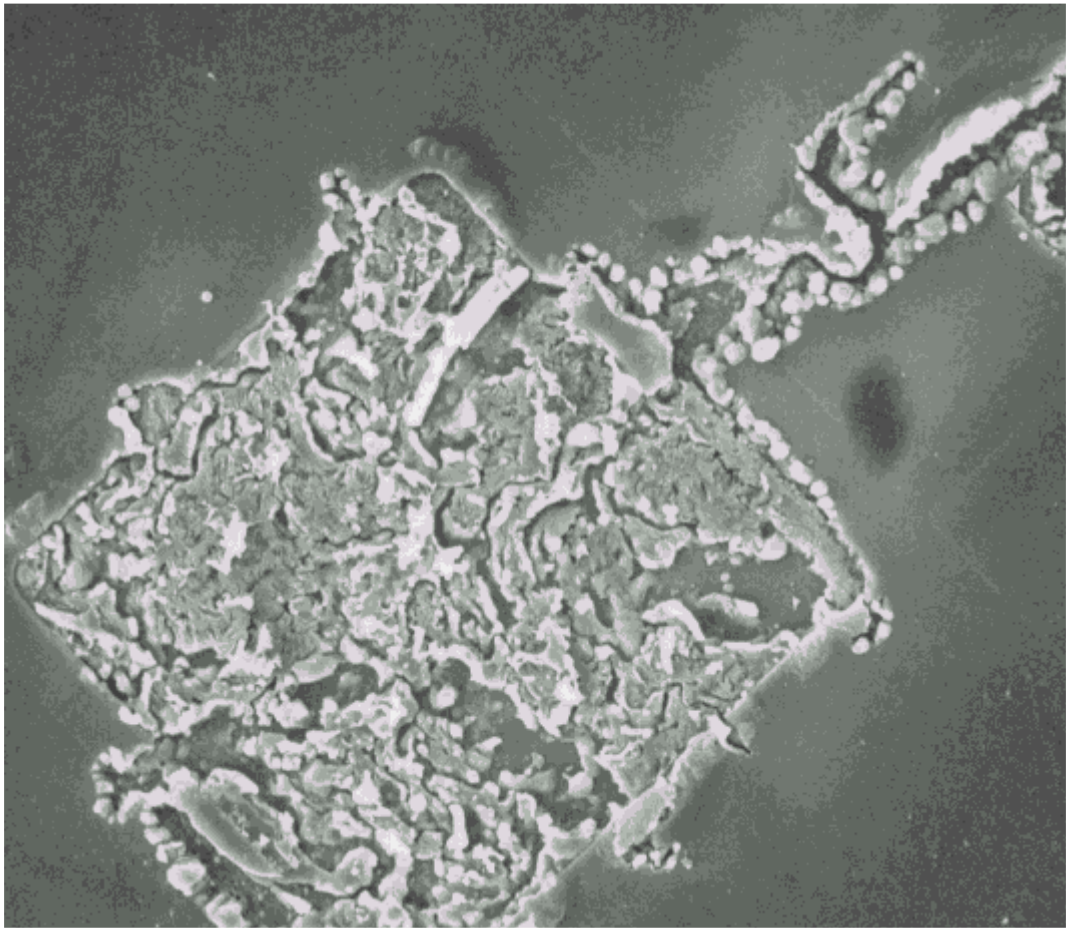


Amplification versus experiment set up

Heating method	Sample Environment	Current density	Hydrogen source	Power supply	Amplification
Indirect	Vacuum	0	Solid	DC	~1
Direct	Vacuum	.5 10^6	Solid	DC	~1
Direct	Gas H2+N2	2 10^6	Gas	DC	>1
Direct	Air	2 10^6	Solid	DC/AC	>1
Direct	Vacuum	3 10^6	Solid	Pulse	>10

ASTI October 1999 by U. Mastromatteo

POSSIBLE REACTIONS INDUCED BY HYDROGEN ABSORPTION IN NICKEL LAYER (<H/Ni>=<1/1>)

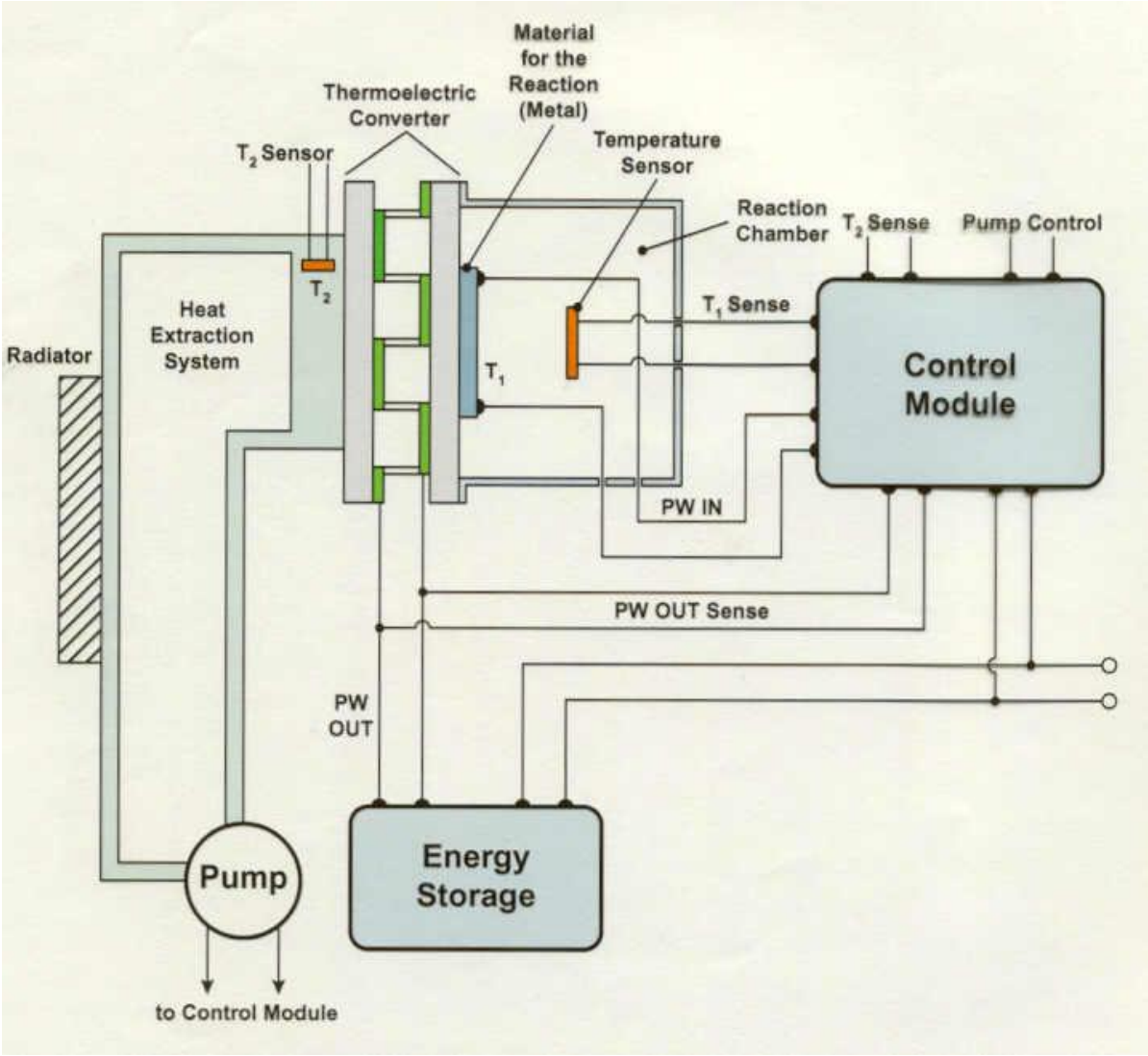
1. Ammonia formation at surface: ΔT = 25 °C

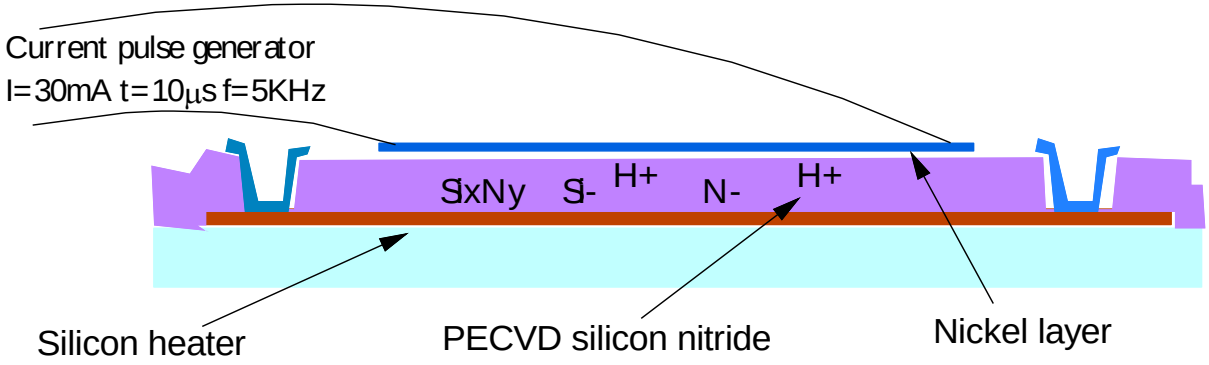
2. Instantaneous NiH formation: ΔT = 428 °C

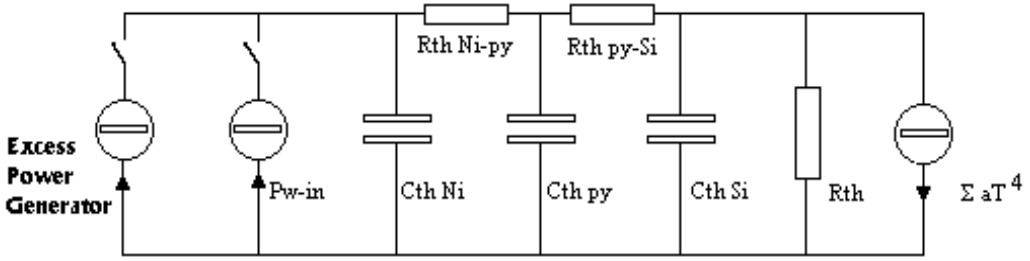
3. Instantaneous NiH_2 formation: ΔT = 918 °C

4. Nuclear reactions: a 10^-3 H + D reaction rate melts the Nickel layer

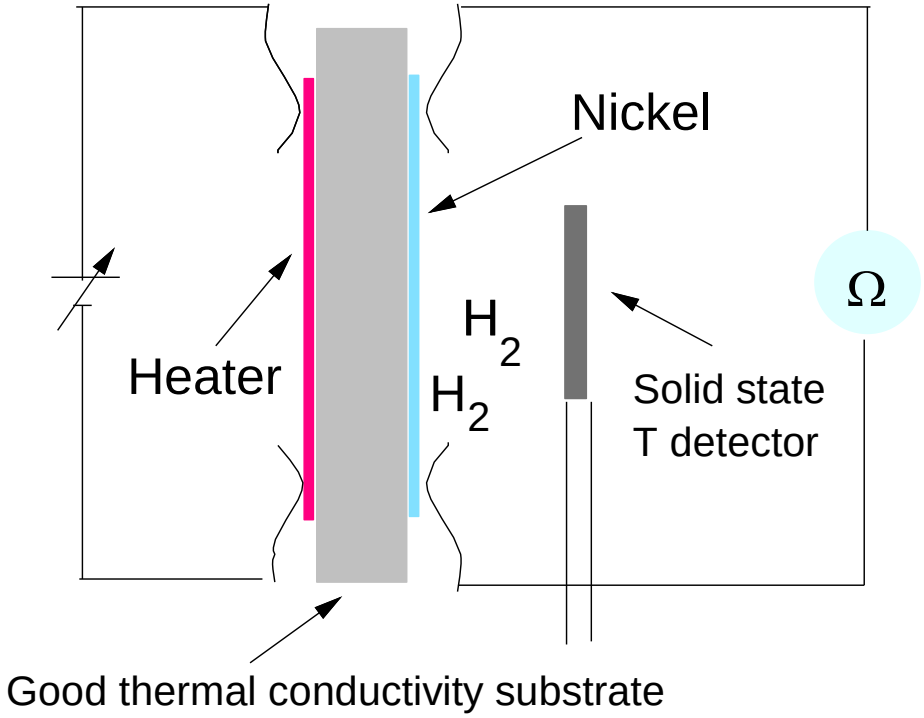
By U. Mastromatteo Frascati 5-28-98

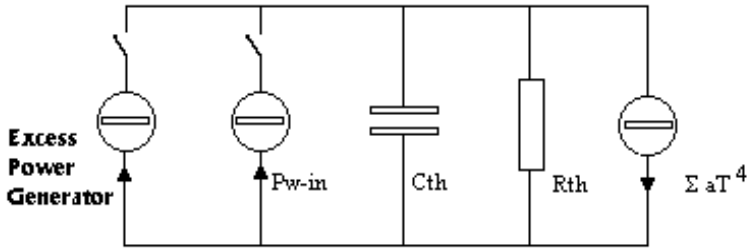

Material
for the
Reaction
(Metal)
Thermoelectric
Converter
T_2 Sensor
Temperature
Sensor
Reaction
Chamber
T_2 Sense
Pump Control
T_2
Heat
Extraction
System
Radiator
T_1
T_1 Sense
Control
Module
PW IN
PW OUT Sense
PW
OUT
Pump
Energy
Storage
to Control Module


Current pulse generator
I=30mA t=10μs f=5KHz
SixNy
Si-
H+
N-
H+
Silicon heater
PECVD silicon nitride
Nickel layer


Rth Ni-py
Rth py-Si
Excess
Power
Generator
Pw-in
Cth Ni
Cth py
Cth Si
Rth
Σ aT 4

NEW MICROCELL EMBODIMENT





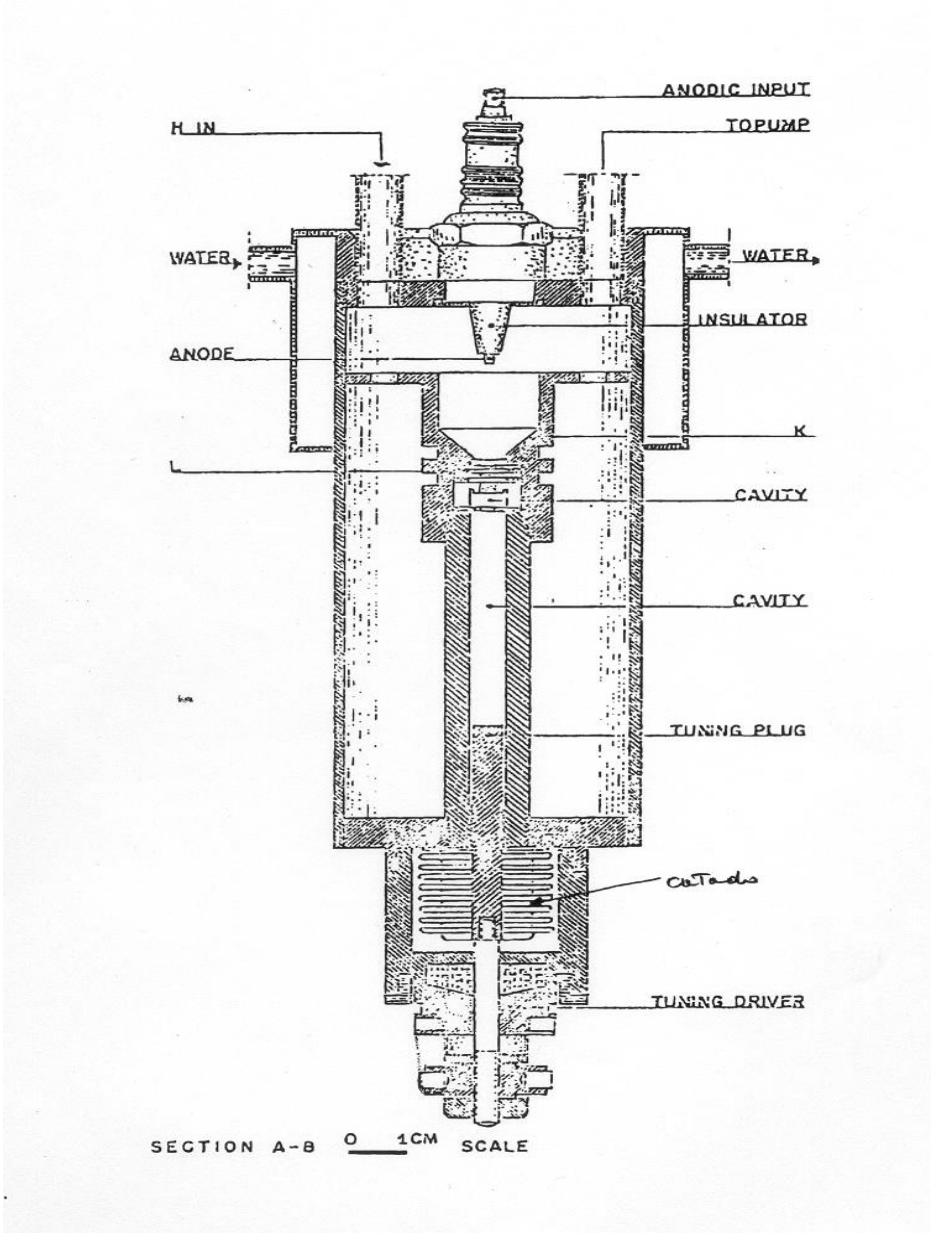
By U. Mastromatteo Frascati 5-28-98

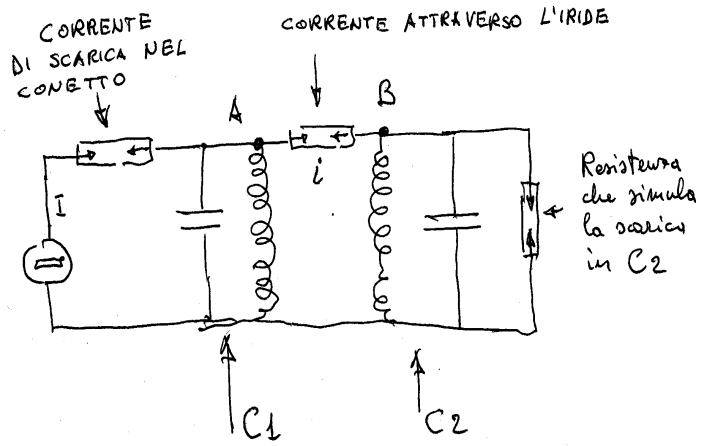

don Carlo Borghi

Don Carlo Borghi (1910-1984)

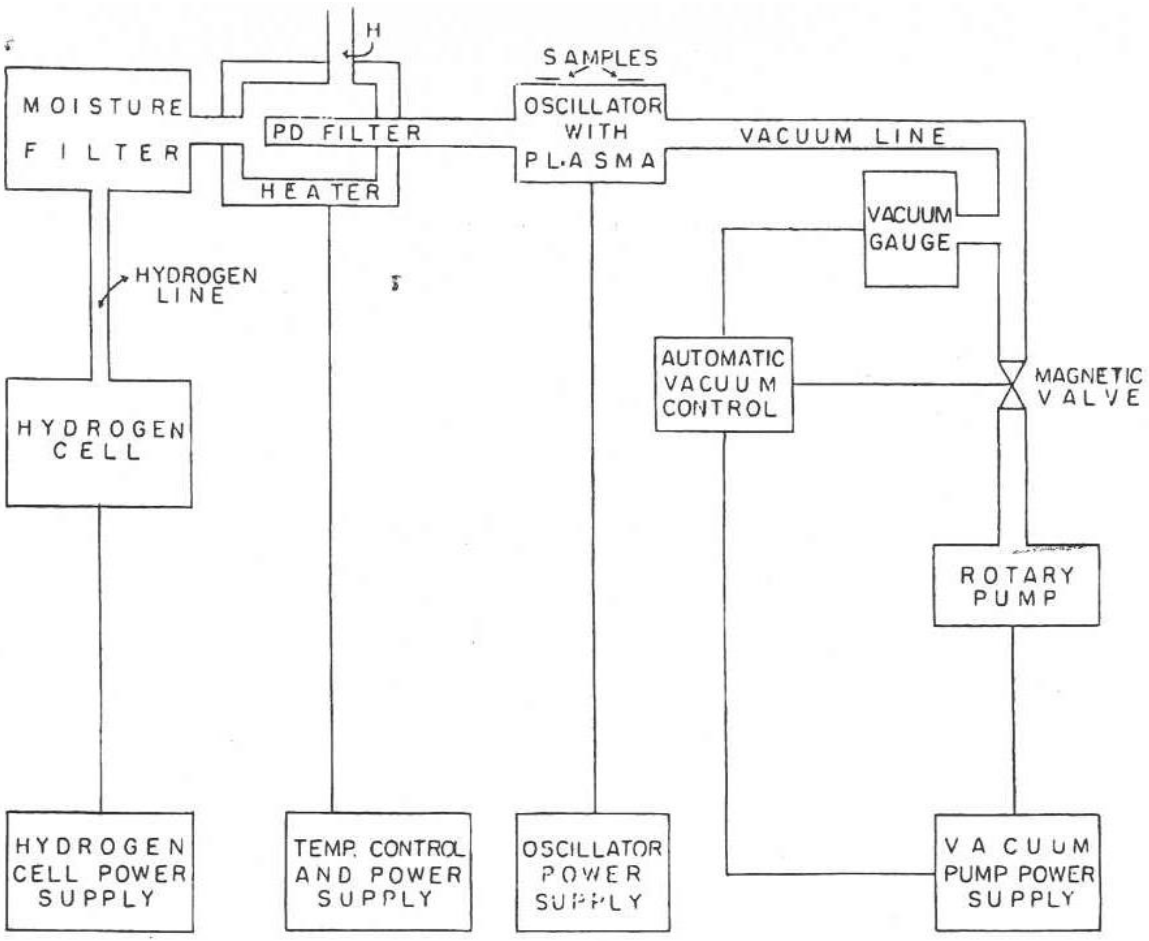
Professore di Fisica Teorica a Milano nel 1942.
Dal 1946 al 1952 e' Parroco.
Dal 1952 al 1958 svolge una Ricerca in un laboratorio Privato.
Dal 1960 al 1975 e' insegnante All'Universita' Cattolica di Recife in Brasile.
Nel 1975 rientra in Italia per Ragioni di salute.

Reattore a cavita' risonante per La generazione di un plasma freddo Di idrogeno.





Schema a blocchi Dell'apparato Sperimentale.



Attivazione di antimonio Metallico.
Sull'asse X la scala e' in Giorni.

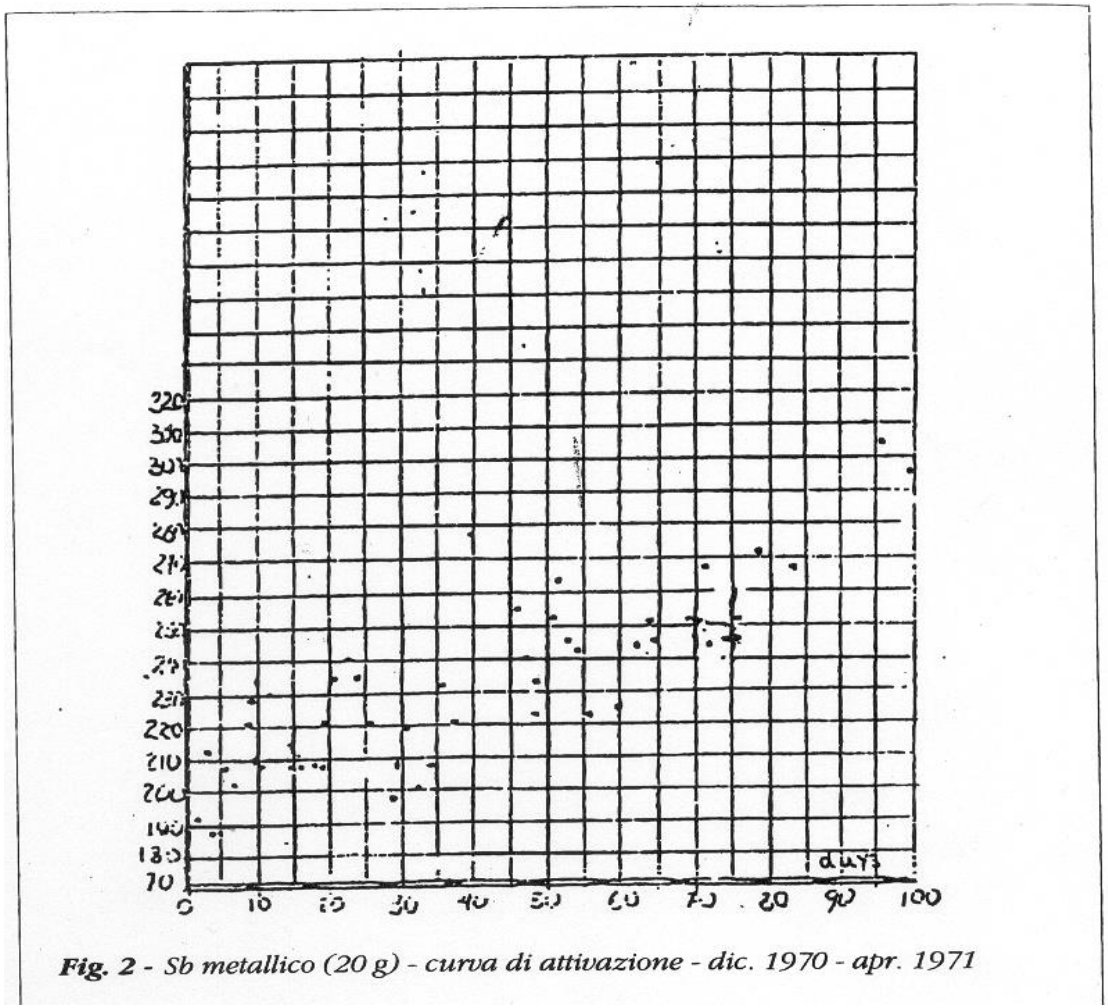


Fig. 2 - Sb metallico (20 g) - curva di attivazione - dic. 1970 - apr. 1971

Curva di decadimento del Campione di Antimonio del Grafico precedente.

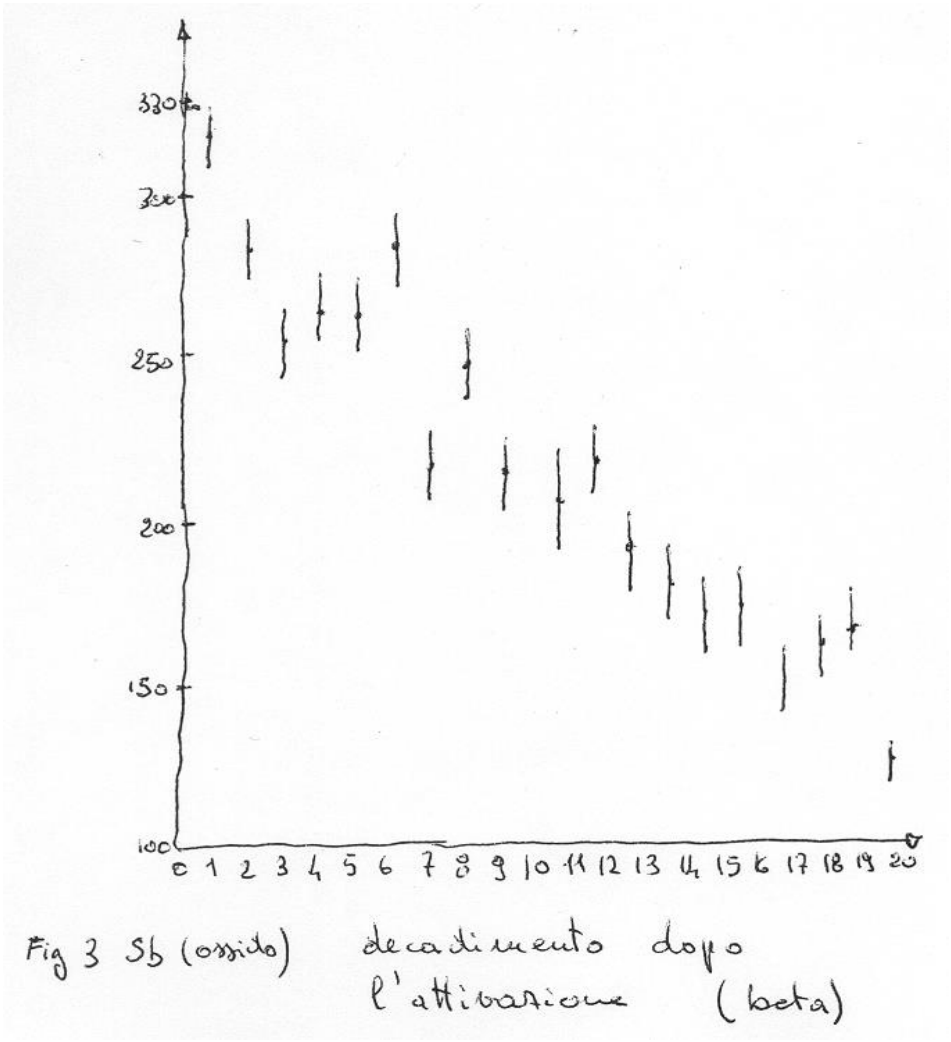
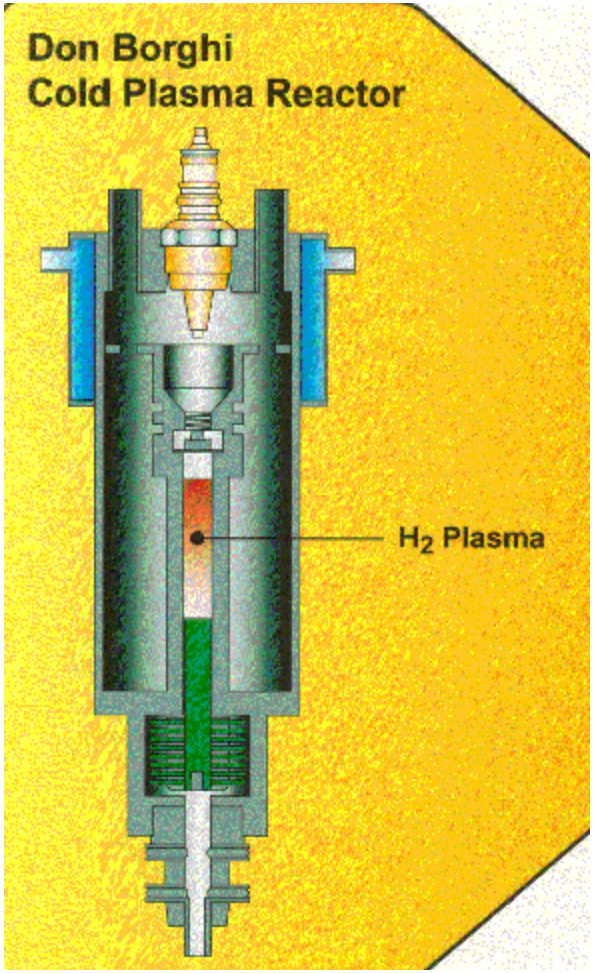
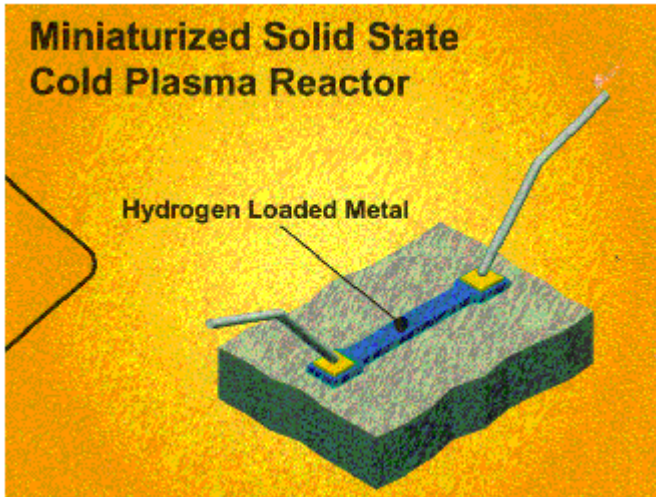


Fig 3 Sb (ossido) decadimento dopo l'attivazione (beta)

E’ reale l’equivalenza del reattore di don Borghi con una barretta metallica caricata di idrogeno?





Interrogativi che emergono dagli esperimenti presentati

- La formazione delle particelle neutre avviene nel plasma o nelle pareti della camera?
- Qual e' il ruolo della radio frequenza?
- Perche' la microcella e' piu' efficiente di una minicella?
- Perche' il caricamento del metallo e' necessario?
- La situazione nel metallo a riguardo degli urti "p-e" quanto e' simile a quella del plasma freddo?