

Exponential Experiments on D.O.U. Lattice

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P/605.

§1. square lattice

→

0.75" ~ 2.00" ϕ

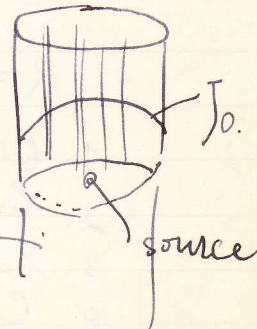
moderator volume/u. vol. 15 ~ 200 u. p. t.

§2. Experimental Facilities.

relaxation length

Al 0.25" π & τ
5" ϕ , 6' high.
1 $\pm$ 0.062"

graphite



$\bar{M}$ 1.4 7000 Lb.

Po-Be 10^9 n/sec

source



source 5"

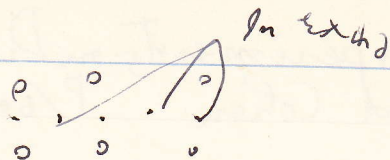
graphite ϕ ~ 1.5" x 2.5"

17"

ϕ in source is 1.5" x 1.5"
94" x 1.5" x 1.5"

§3. Neutron detector Equip.

In foil 1cm x 1cm 100 mg
Cd covered, bare



cell. & neutron distr. Σ & ν $\pm 4\%$ gold
 foil . $0.21 \times 1.0 \text{ cm}$ ($\pm 0.05\%$) $\pm 4\%$ gold

§4. Measurement at VHA

$$\Phi(r, z) = A J_0(\mu r) \sinh \nu (h - z)$$

$$B^2 = \mu^2 - \nu^2$$

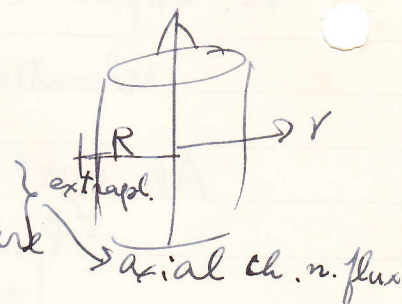
$$R = \frac{2.4048}{\mu}$$

1. bare foil, axial

2. half-Cd axial exposure

3. bare radial

4. Cd covered radial

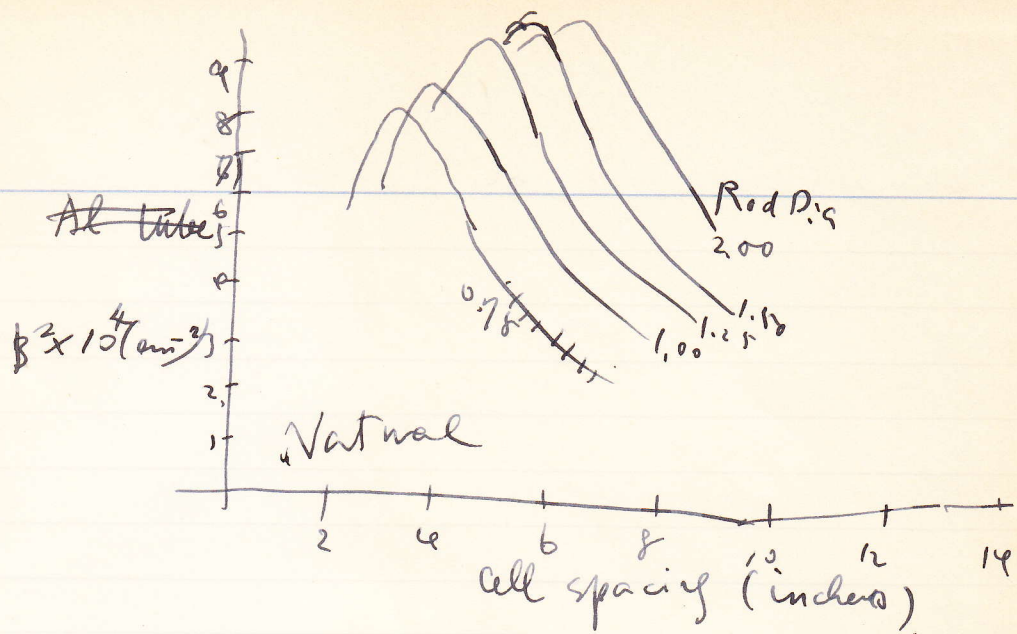


$$A = A_B - C A_{Cd} \dots \dots \text{thermal act.}$$

$C = 1.07$

§5. Buckling of P_{20} -U La.

Fuel	Density	Atomic Fraction ^{235}U	Σ_a (Maxwell)
Depleted	18.80 g/cm ³	4.96×10^{-3}	0.2557 cm^{-1}
Natural	18.80 g/cm ³	7.205×10^{-3}	0.320
Enriched	18.83	9.124×10^{-3}	0.3767
Al tube	0.1 cm		



rod 16 ~ 208 #
optimum dia 1.50'. cell spacing ~ 6'

Enrich 1.00' ϕ
 Repl. 1.00 ϕ
 2.00 ϕ