

concerning Presentation at GE KAPL

Oct 2 Thurs.

FR-7-8521

F. Fisher

2:00 or 2:30

P. Hazard

426 Franklin St.

come for lunch, 12:00

2 hrs. by tape.

KAPL 2 meetings

Large Nuclear Physicists  
group

if gen. discussion of problems  
which can be done on SPRE-7-84  
faster than other computer

Smaller - machine function  
group

Dick Ehrlich - Mgr Adv. Development Activities  
Charles Kerber - " 704 opna  
Henry Hunter - Analyst - Pres. & future Computer Regs.  
Don McMullan - Mgr 704 Programming  
Geo. Habetler - Math. Consultant

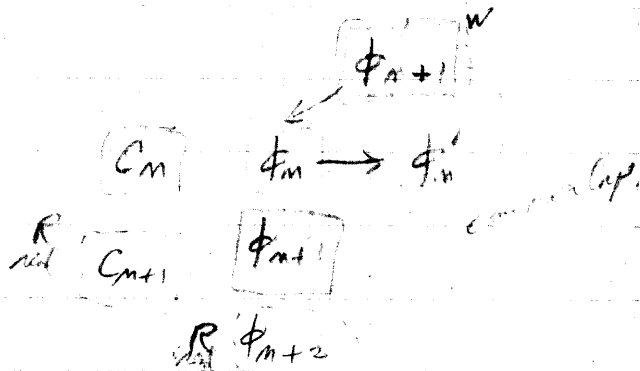
Harry Smith - AEC Representative

# Notes on Reactor Calcs.

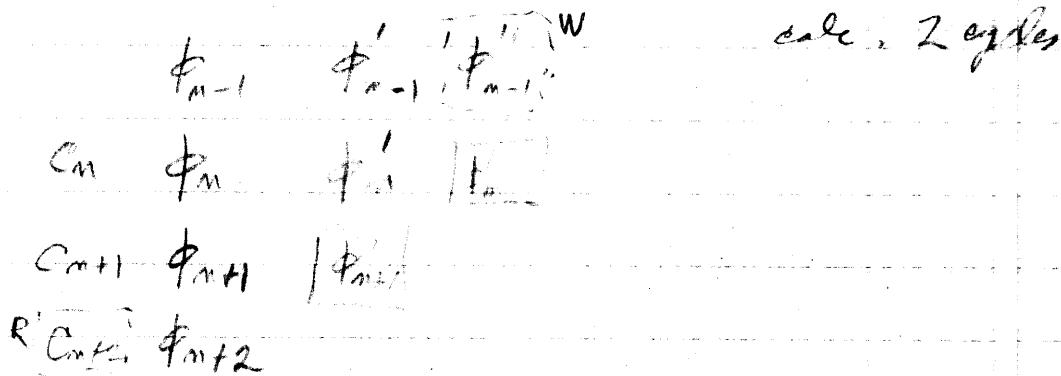
50000000  
 (24 \* 4 \* 32) \* 8  
 = 22K

$\phi_{m-1}$  write  
 $C_m$   $\phi_m$  compute  $\phi'_m$   
 $C_{m+1}$  read  $\phi_{m+1}$   
 $\phi_{m+2}$  read

bring more steps  
 of the next iteration

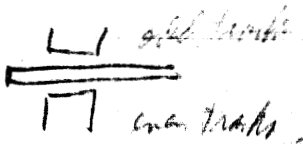
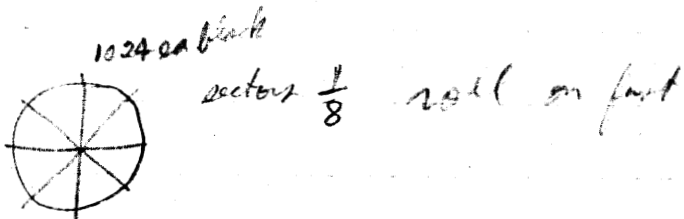
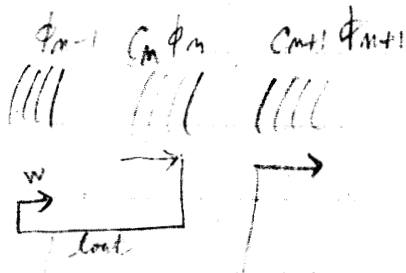


2500 mid block



	$R$	Time per cycle	(+12)	compute	3/0	Total
8 $\mu$ s	small mem	①	35. us	64. us	64	
8 $\mu$ s	large mem	②	35.	32	35	
4 $\mu$ s		③	35.	36	36	
		④	35.	18	35	

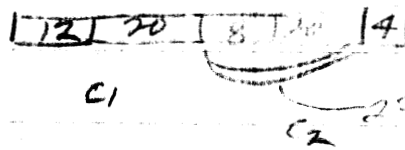
Tracks on disk 4096



1 1/2 tracks (not rolled)

$$\begin{aligned}
 32 + 32 + 16 &= 80 \\
 1 - 32 + 16 &= 14 \\
 0 + 32 + 16 &= 48
 \end{aligned}$$

pack



(3 c<sub>1</sub>)  
(1 S)  
1 φ  
5 each

- F LD
- F MPY
- F ADD
- F STO
- VFL Load
- F MPY
- F ADD
- F STO

$$\frac{90K}{5} = 18,000 \text{ ops per group in Mem, at once}$$

20x30x30 mark

$$\begin{aligned}
 &0.360000 \text{ sec to write old group} \\
 &0.36 \text{ to read new} \\
 \hline
 &0.72 \text{ sec I/O}
 \end{aligned}$$

$$(18,000 \text{ ops} \times 50,000) = 0,900,000 \text{ sec per iteration counting state etc.}$$

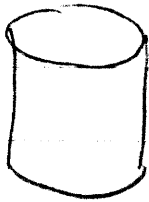
16 planes  
 blocks

Example: consider 4 groups,  
 $\frac{32K \text{ points}}{8} = 256K$   $\equiv$   $(16 \times 45 \times 45 \text{ mesh})$  4 groups. (8, 4, 4)

32K in mem.

= 60, 800, 1000

→ can just flush C's then & keep 4.2 in. (4.52)



$$6 C^2 = 194,400$$

32,400 point of in mem.

32,400. Size in Mem

64,800 mem. needed

other 3 group (

$$194,400 + 32,400 = 259,200.)$$

$$3(259,200) = 777,600.$$

run to other

$$32,400.$$

$$\underline{1,036,800}$$

(16 planes) (2025)

S     $\phi$     C    C<sup>out</sup>  
32K    32K    12K    12K    (48us)

4K was pulled



3 tracks    average    8.2 us / bit

C     $\phi$      $\phi'$   
C     $\phi$      $\phi$   
C     $\phi$