

Hi m

— NTU 4 yrs

Chemical Eng



Nuclear Eng

* Chemical E

Nuc E

1. mass / E bal

2. Mat Sci

3. Labs

- Screening
exams

- TH

4. Biomolecular Eng

— ^{nuc} materials
— neutronics
— physics

5. Thermo

6. Eng Math ODEs

7. Org chem

8. Fluid mech

9. Comp methods

10. Chem Thermodynamics

solns
mix

molten
salt
research

11. Heat & mass trf

12. unit ops | — distill

13. Chem rxn eng — CSTR
— PFR

14. Process Control — PID

15. Solid Fluid — Fluid Bed

16. Safety — HAZOP

Pebble
Bed

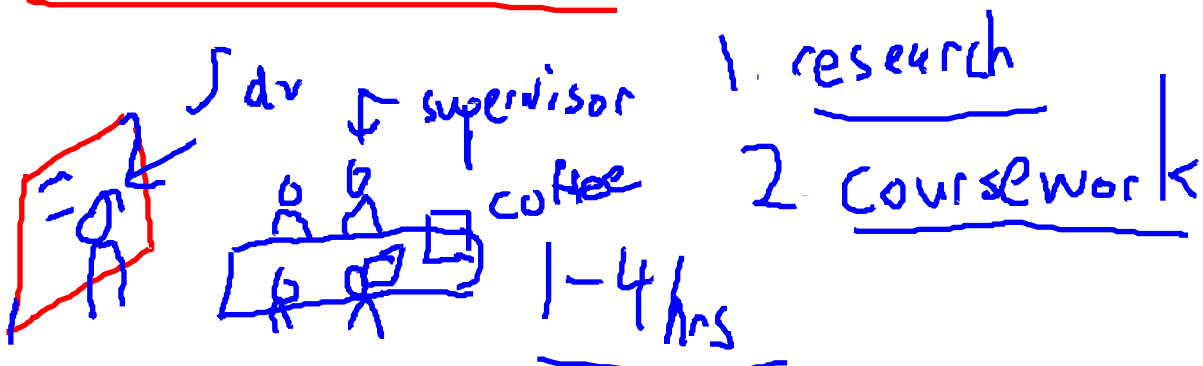
17. Internship ✓

18. ~~Petroleum Refining~~ ✓

19. ~~FYP~~

↓
Risk

Qualifying Exam



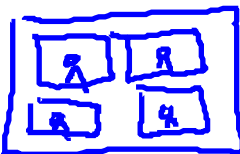
COVID

Zoom

new +pt 2

- multigroup diffusion

energy eqn



- feedback mechanism

fuel temperature

Research plan

20 slides

When I started...

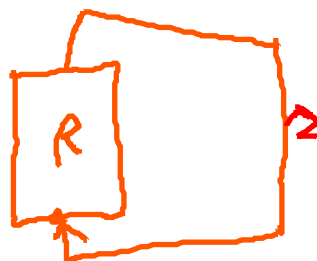
① type to sim reactors PDE

② learn as much as possible
↳ sim techniques

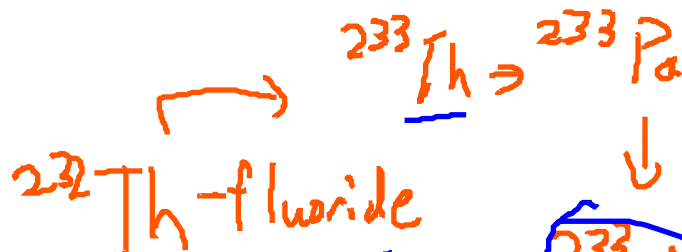
③ expt + sim so/so

④ msk → FAR → C|E| ^{Prof Paterson}
↑
scale model

LFTR



liquid
molten
salt

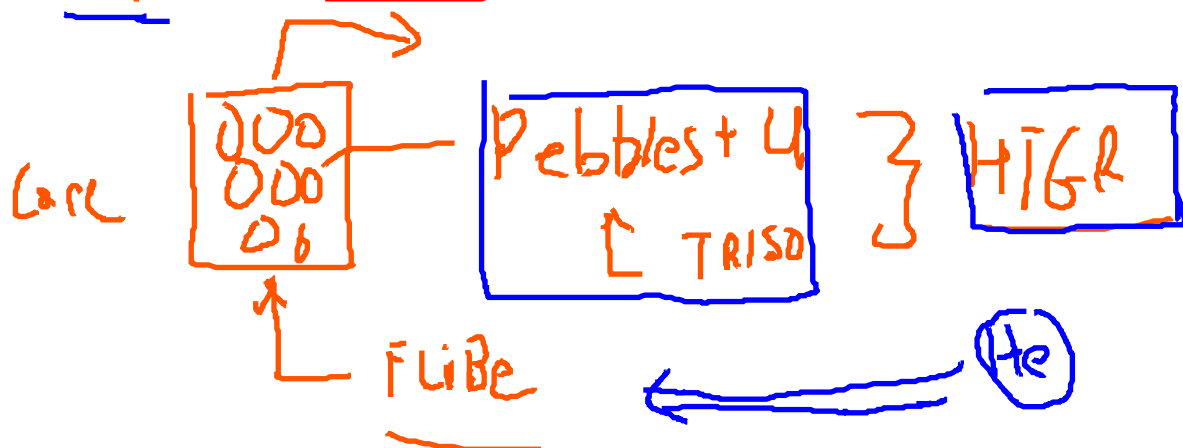


Breeding



FHR — solid fuel

2011?



Safety
guarantees

test
reactor

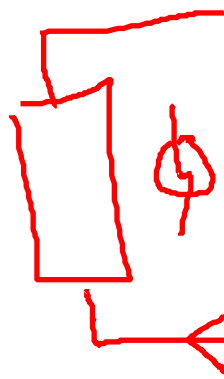


- Safety

- operational (molten salt) ✓

↑
test
loop

- Ammonia ✓



Be toxic ✓

FLiBe

600-700°C ✓



→ surrogate /
simulator
fluid

Dowtherm A /
Therminol VP-1

scale
model

simulate



80-110°C

FLiBe

Thermal Hydraulics

low
toxic



Compact

Integral

Effects
Test

CIE

