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NPRE 247

Homework 7

1) With Jupyter and I will send the work via email.

2a) -4.439 MeV

b) 4.812 MeV

c) 3.224 MeV

3) There was no question 3

4a) The other fragment is Rhodium-111

b) 173.412 MeV

c) T Ag-121: 71.762 MeV

T Rh-111: 78.238 MeV

d) 23.412 MeV

5a) (90,36)Kr -> (90,37)Rb -> (90,38)Sr -> (90,39)Zr #all through beta- decay

(142,56)Ba -> (142,57)La -> (142, 58)Ce #all through beta- decay

b) (1,0)n + (235,92)U -> (90,39)Zr + (142,58)Ce + 5(0,-1)e + 5ν + 4(1,0)n + 6γ

c) 169.506 MeV

d) 190.010 MeV

6a) 1.00496e18 Fusions

b) 0.00231 W

7a) 15.272 1/m

b) 6.548 cm

8)

Material	u @ .1[MeV]	u @ 1[MeV]	u @ 10[MeV]
Water	0.381692	0.20345368	0.07630013860000001
Concrete	0.8271237	0.28989733599999995	0.18422353009999998
Iron	8.6976204	1.350166591	0.82497441304
Lead	166.1632055	2.4010925000000003	1.96627627

9a) 1 – exp(-t1 * u1)

b) (1 – exp(-t2 * u2) * exp(-t1 * u1)

c) exp(-(t1 * u1) – (t2 * u2))

10) 3.402e4 1/(cm^2*s)