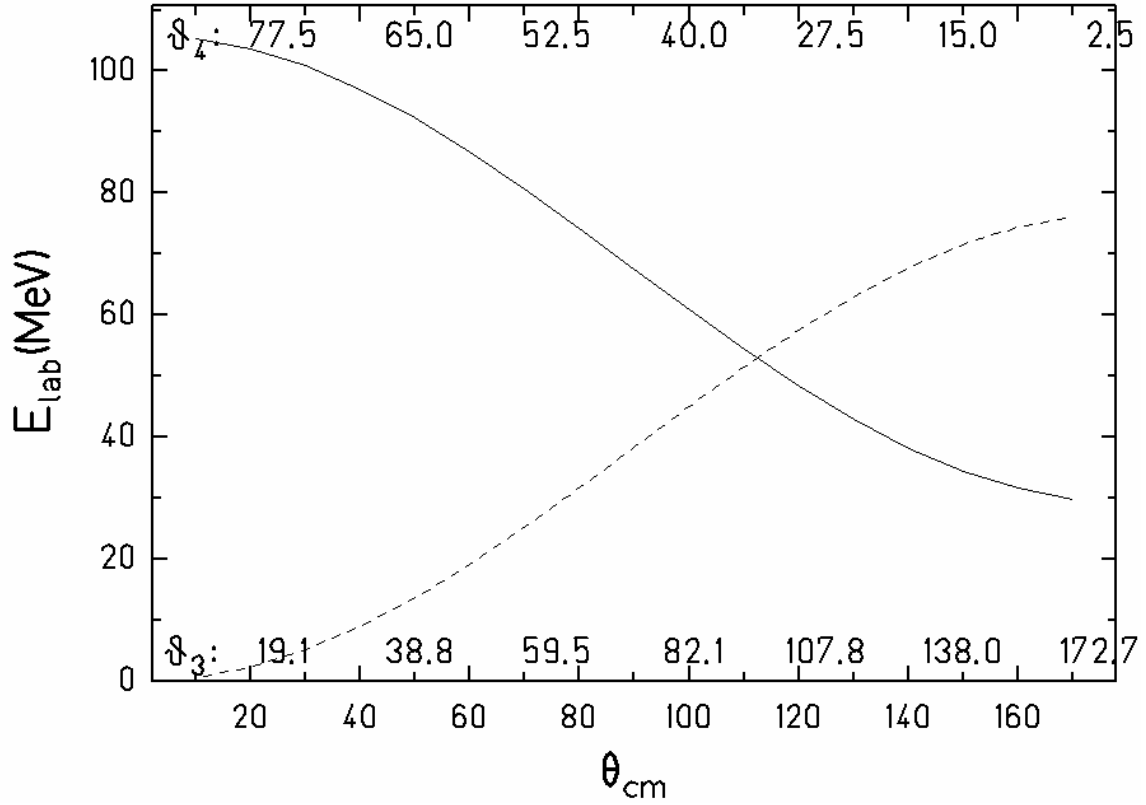


Kinematics:

Projectile: Si-28; Target Zr-90, $E_{lab} = 106$ MeV



Nucleus	R (fm)	C (fm)	R_{int} in collisions	R_{Fu} in collisions
Si-28	3.390	3.095	with Si-28 (fm)	with Si-28 (fm)
Zr-90	5.155	4.961	11.277	10.103
Zr-94	5.236	5.045	11.348	10.174

For Zr-90

E_{lab} (MeV)	l_{gr}	$\theta_{1/4}^{cm}$	l_{Fu}	σ_R (mb)	σ_{Fu} (mb)
97	18.0	138.5°	-	133.8	-
100	24.9	123.9°	-	249.6	-
103	30.3	113.3°	-	358.8	-
106	34.9	104.9°	10.4	461.7	41.0
109	38.9	98.0°	18.6	558.9	128.1
112	42.6	92.1°	24.2	651.0	210.6
115	45.9	87.0°	28.7	738.2	288.8

For Zr-94

E_{lab} (MeV)	l_{gr}	$\theta_{1/4}^{\text{cm}}$	l_{Fu}	σ_{R} (fm ²)	σ_{Fu} (fm ²)
97	22.1	130.0°	-	199.1	-
100	28.3	117.7°	-	314.5	-
103	33.3	108.3°	3.3	423.2	4.2
106	37.6	100.7°	16.1	525.8	96.1
109	41.5	94.3°	22.5	622.6	183.0
112	45.1	88.8°	27.5	714.3	265.2
115	48.4	84.0°	31.6	801.2	343.1

Si-28 on Zr-90:

Ar-28	Ar-29	Ar-30 -50.7 -10.9	Ar-31 -40.8 -10.8	Ar-32 -24.8 -10.7	Ar-33 -19.4 -10.5	Ar-34 -9.5 -10.4	Ar-35 -7.2 -10.3	Ar-36 0.6 -10.2
Cl-27	Cl-28 -57.5 -8.8	Cl-29 -41.7 -8.6	Cl-30 -32.1 -8.5	Cl-31 -18.6 -8.4	Cl-32 -14.2 -8.3	Cl-33 -7.1 -8.1	Cl-34 -6.1 -8.0	Cl-35 -2.2 -7.9
S-26 -53.4 -6.4	S-27 -44.1 -6.3	S-28 -28.4 -6.1	S-29 -20.9 -6.0	S-30 -8.3 -5.8	S-31 -6.3 -7.4	S-32 0.3 -5.6	S-33 -2.6 -5.5	S-34 0.3 -5.4
P-25 -44.9 -3.7	P-26 -36.4 -3.5	P-27 -23.2 -3.3	P-28 -16.6 -3.2	P-29 -5.6 -3.1	P-30 -5.8 -2.9	P-31 -2.8 -2.8	P-32 -6.7 -2.7	P-33 -6.1 -2.6
Si-24 -33.7 -0.6	Si-25 -27.0 -0.4	Si-26 -14.7 -0.3	Si-27 -9.99 -0.1	Si-28	Si-29 -3.5 0.1	Si-30 -2.2 0.3	Si-31 -8.0 0.4	Si-32 -8.4 0.5
Al-23 -30.2 2.7	Al-24 -23.8 2.9	Al-25 -14.1 3.0	Al-26 -11.6 3.2	Al-27 -6.4 3.3	Al-28 -10.8 3.4	Al-29 -11.5 3.6	Al-30 -17.96 3.7	Al-31 -21.1 3.8
Mg-22 -21.1 6.3	Mg-23 -17.1 6.4	Mg-24 -7.9 6.6	Mg-25 -10.3 6.8	Mg-26 -7.2 6.9	Mg-27 -13.5 7.0	Mg-28 -15.1 7.2	Mg-29 -24.6 7.4	Mg-30 -28.7 7.4
Na-21 -20.9 10.1	Na-22 -19.3 10.3	Na-23 -14.7 10.4	Na-24 -17.7 10.6	Na-25 -17.3 10.7	Na-26 -24.4 10.9	Na-27 -28.7 11.0	Na-28 -38.0 11.1	Na-29 -45.4 11.2
Ne-20 -15.0 14.2	Ne-21 -18.4 14.4	Ne-22 -16.1 14.6	Ne-23 -21.7 14.7	Ne-24 -21.7 14.8	Ne-25 -30.9 15.0	Ne-26 -36.3 15.1	Ne-27 -48.8 15.2	Ne-28 -56.1 15.3

Si-28 on Zr-94:

Ar-28	Ar-29	Ar-30 -60.1 -10.9	Ar-31 -48.7 -10.7	Ar-32 -31.6 -10.6	Ar-33 -22.7 -10.5	Ar-34 -10.7 -10.3	Ar-35 -5.0 -10.2	Ar-36 4.7 -10.1
Cl-27	Cl-28 -66.8 -8.8	Cl-29 -49.3 -8.6	Cl-30 -38.4 -8.5	Cl-31 -23.9 -8.3	Cl-32 -16.1 -8.2	Cl-33 -6.0 -8.1	Cl-34 -1.7 -8.0	Cl-35 4.9 -7.8
S-26 -61.8 -6.4	S-27 -51.1 -6.2	S-28 -34.0 -6.1	S-29 -25.5 -5.9	S-30 -11.8 -5.8	S-31 -6.1 -5.7	S-32 3.2 -5.6	S-33 4.0 -5.4	S-34 9.1 -5.3
P-25 -51.4 -3.6	P-26 -41.4 -3.5	P-27 -26.8 -3.3	P-28 -19.2 -3.2	P-29 -7.6 -3.0	P-30 -3.7 -2.9	P-31 2.0 -2.8	P-32 2.0 -2.7	P-33 5.3 -2.5
Si-24 -38.2 -0.6	Si-25 -29.6 -0.4	Si-26 -16.2 -0.3	Si-27 -10.7 0.1	Si-28	Si-29 0.3 0.1	Si-30 4.1 0.3	Si-31 2.1 0.4	Si-32 4.1 0.5
Al-23 -33.2 2.7	Al-24 -25.2 2.8	Al-25 -14.2 3.0	Al-26 -10.9 3.1	Al-27 -4.8 3.3	Al-28 -5.5 3.4	Al-29 -3.3 3.6	Al-30 -6.4 3.7	Al-31 -7.2 3.8
Mg-22 -22.2 6.2	Mg-23 -17.3 6.4	Mg-24 -6.7 6.6	Mg-25 -8.0 6.7	Mg-26 -3.8 6.8	Mg-27 -6.5 7.0	Mg-28 -5.3 7.1	Mg-29 -11.3 7.2	Mg-30 -13.1 7.3
Na-21 -20.2 10.0	Na-22 -17.6 10.2	Na-23 -17.6 10.4	Na-24 -17.6 10.5	Na-25 -12.2 10.7	Na-26 -16.0 10.8	Na-27 -17.2 10.9	Na-28 -23.6 11.0	Na-29 -27.8 11.2
Ne-20 -12.6 14.1	Ne-21 -15.1 14.3	Ne-22 -11.5 14.5	Ne-23 -16.0 14.6	Ne-24 -14.6 14.7	Ne-25 -20.6 14.9	Ne-26 -23.1 15.0	Ne-27 -32.4 15.1	Ne-28 -37.5 15.2

Ar-37 3.7 -10.0	Ar-38 8.4 -9.9	Ar-39 4.5 -9.8	Ar-40 6.9 -9.8	Ar-41 2.0 -9.7	Ar-42 3.6 -9.6	Ar-43 -2.3 -9.5
Cl-36 3.5 -7.7	Cl-37 5.2 -7.6	Cl-38 0.8 -7.6	Cl-39 0.1 -7.5	Cl-40 -5.0 -7.4	Cl-41 -6.0 -7.3	Cl-42 -11.6 -7.2
S-35 5.0 -5.2	S-36 6.4 -5.1	S-37 -0.8 -5.0	S-38 -1.3 -4.9	S-39 -8.8 -4.8	S-40 -9.9 -4.8	S-41 -18.6 -4.7
P-34 0.1 -2.4	P-35 -0.9 -2.3	P-36 -9.2 -2.2	P-37 -11.9 -2.1	P-38 -20.1 -2.1	P-39 -23.8 -2.0	P-40 -32.2 -1.9
Si-33 -3.4 0.6	Si-34 -5.2 0.7	Si-35 -15.1 0.8	Si-36 -18.6 0.9	Si-37 -29.1 1.0	Si-38 -33.5 1.1	Si-39 -44.4 1.1

Al-32 -15.0 3.9	Al-33 -19.7 4.0	Al-34 -19.5 4.1	Al-35 -34.5 4.2	Al-36 -44.8 4.3	Al-37 -51.2 4.4	Al-38 -62.6 4.4
Mg-31 -23.3 7.5	Mg-32 -27.8 7.6	Mg-33 -39.0 7.7	Mg-34 -44.5 7.8	Mg-35 -57.4 7.8	Mg-36 -65.1 7.9	Mg-37 -78.8 8.0
Na-30 -38.4 11.3	Na-31 -45.4 11.4	Na-32 -55.9 11.5	Na-33 -66.8 11.6	Na-34 -78.7 11.6	Na-35 -90.8 11.7	Na-36
Ne-29 -49.5 15.3	Ne-30 -56.6 15.4	Ne-31 -71.0 15.5	Ne-32 -80.5 15.6	Ne-33	Ne-34	Ne-35