

Sheet1

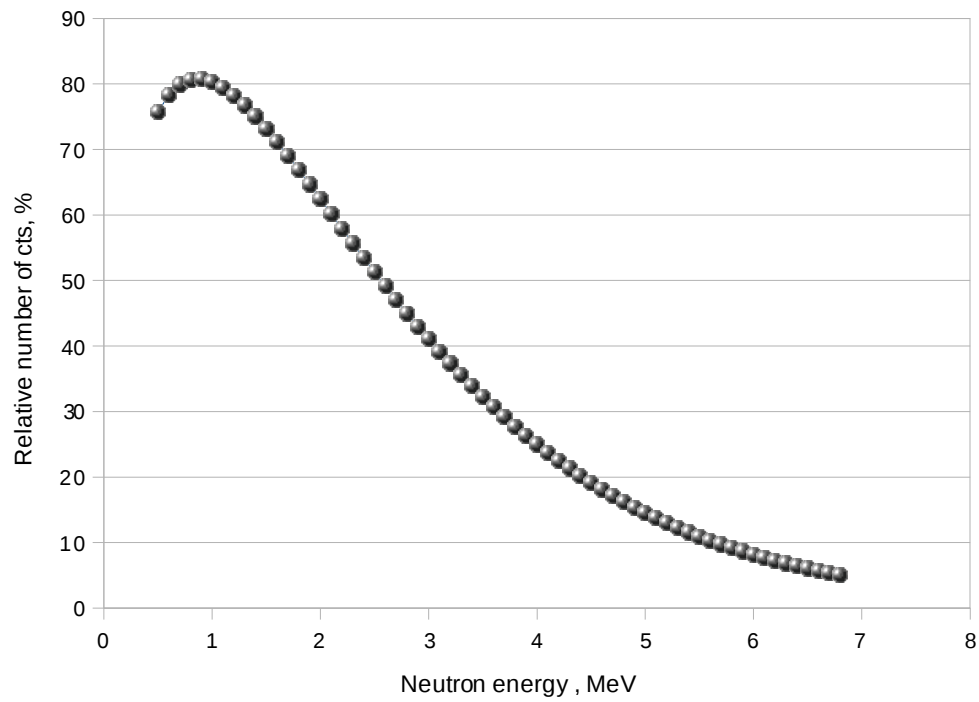
Calculated Cf-252 neutron energy .

0.5	75.69
0.6	78.33
0.7	79.9
0.8	80.63
0.9	80.71
1	80.26
1.1	79.39
1.2	78.18
1.3	76.7
1.4	75
1.5	73.13
1.6	71.13
1.7	69.03
1.8	66.86
1.9	64.64
2	62.4
2.1	60.14
2.2	57.89
2.3	55.64
2.4	53.43
2.5	51.24
2.6	49.1
2.7	47
2.8	44.95
2.9	42.96
3	41.02
3.1	39.14
3.2	37.32
3.3	35.56
3.4	33.86
3.5	32.22
3.6	30.65
3.7	29.14
3.8	27.68
3.9	26.29
4	24.95
4.1	23.67
4.2	22.45
4.3	21.28
4.4	20.16
4.5	19.1
4.6	18.08
4.7	17.11
4.8	16.19
4.9	15.31
5	14.48
5.1	13.68
5.2	12.93
5.3	12.21
5.4	11.53
5.5	10.88
5.6	10.27

5.7	9.69
5.8	9.14
5.9	8.62
6	8.13
6.1	7.66
6.2	7.22
6.3	6.8
6.4	6.4
6.5	6.03
6.6	5.68
6.7	5.34
6.8	5.03

### Calculated Cf-252 neutron energy spectrum

Calculation is good compared to experiment



**M<sub>n</sub>**                      **939.56 MeV/c<sup>2</sup>**

$$\text{TOF} = \sqrt{M_n / (2 * E_n)} * d / c$$

TOF spectra as a function of the distance between the source and detector.

E_n, MeV	c= 30 cm/ns		d3= 100 cm		TOF(200cm),ns
	d1= 40 cm	d2= 80 cm	d3= 80 cm	d3= 130 cm	
	TOF(40cm), ns	TOF(80cm),ns	TOF(100cm),ns	TOF(130cm),ns	
0.5	40.87	81.74	102.17	132.83	204.35
0.6	37.31	74.62	93.27	121.25	186.54
0.7	34.54	69.08	86.35	112.26	172.71
0.8	32.31	64.62	80.78	105.01	161.55
0.9	30.46	60.92	76.16	99	152.31
1	28.9	57.8	72.25	93.92	144.5
1.1	27.55	55.11	68.89	89.55	137.77
1.2	26.38	52.76	65.95	85.74	131.91
1.3	25.35	50.69	63.37	82.38	126.73
1.4	24.42	48.85	61.06	79.38	122.12
1.5	23.6	47.19	58.99	76.69	117.98
1.6	22.85	45.69	57.12	74.25	114.23
1.7	22.16	44.33	55.41	72.04	110.82
1.8	21.54	43.08	53.85	70.01	107.7
1.9	20.97	41.93	52.41	68.14	104.83
2	20.43	40.87	51.09	66.41	102.17
2.1	19.94	39.88	49.86	64.81	99.71
2.2	19.48	38.97	48.71	63.32	97.42
2.3	19.06	38.11	47.64	61.93	95.28
2.4	18.65	37.31	46.64	60.63	93.27
2.5	18.28	36.55	45.69	59.4	91.39
2.6	17.92	35.85	44.81	58.25	89.61
2.7	17.59	35.18	43.97	57.16	87.94
2.8	17.27	34.54	43.18	56.13	86.35
2.9	16.97	33.94	42.43	55.15	84.85
3	16.68	33.37	41.71	54.23	83.42
3.1	16.41	32.83	41.03	53.34	82.07
3.2	16.16	32.31	40.39	52.5	80.78
3.3	15.91	31.82	39.77	51.7	79.54
3.4	15.67	31.35	39.18	50.94	78.36
3.5	15.45	30.89	38.62	50.2	77.24
3.6	15.23	30.46	38.08	49.5	76.16
3.7	15.02	30.05	37.56	48.83	75.12
3.8	14.82	29.65	37.06	48.18	74.12
3.9	14.63	29.27	36.58	47.56	73.17
4	14.45	28.9	36.12	46.96	72.25
4.1	14.27	28.54	35.68	46.38	71.36
4.2	14.1	28.2	35.25	45.83	70.51
4.3	13.94	27.87	34.84	45.29	69.68
4.4	13.78	27.55	34.44	44.78	68.89
4.5	13.62	27.25	34.06	44.28	68.12
4.6	13.47	26.95	33.69	43.79	67.37
4.7	13.33	26.66	33.33	43.32	66.65
4.8	13.19	26.38	32.98	42.87	65.95
4.9	13.06	26.11	32.64	42.43	65.28
5	12.92	25.85	32.31	42	64.62

5.1	12.8	25.59	31.99	41.59	63.98
5.2	12.67	25.35	31.68	41.19	63.37
5.3	12.55	25.11	31.38	40.8	62.77
5.4	12.44	24.87	31.09	40.42	62.18
5.5	12.32	24.65	30.81	40.05	61.61
5.6	12.21	24.42	30.53	39.69	61.06
5.7	12.1	24.21	30.26	39.34	60.52
5.8	12	24	30	39	60
5.9	11.9	23.8	29.74	38.67	59.49
6	11.8	23.6	29.5	38.34	58.99
6.1	11.7	23.4	29.25	38.03	58.5
6.2	11.61	23.21	29.02	37.72	58.03
6.3	11.51	23.03	28.78	37.42	57.57
6.4	11.42	22.85	28.56	37.13	57.12
6.5	11.34	22.67	28.34	36.84	56.68
6.6	11.25	22.5	28.12	36.56	56.25
6.7	11.16	22.33	27.91	36.29	55.82
6.8	11.08	22.16	27.71	36.02	55.41

TOF spectrum of Cf-252 neutrons  
(spontaneous fission)

