

FREYA tasks SummerSchool May 2017

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1 Spontaneous fission of Cf252

1.1 Factorial moments of Cf252

Table 1: Neutrons, first four factorial moments

Moment	Value
1	3.74896
2	12.0088
3	32.1299
4	69.7771

1.2 Examine the dependence of $\bar{\nu}$, $\bar{\nu}_1$, $\bar{\nu}_2$ and \bar{N}_γ on dTKE, x and cs

Table 2: The dependence of $\bar{\nu}$, $\bar{\nu}_1$, $\bar{\nu}_2$ and \bar{N}_γ on dTKE, when x=1.27 is held constant

Variable	dTKE = 0.01	dTKE = 0.32	dTKE=0.52 (default)	dTKE= 1.00	dTKE= 1.52
$\bar{\nu}$	3.80868	3.77398	3.74896	3.68827	3.62737
$\bar{\nu}_1$	2.20929	2.18963	2.17103	2.14226	2.10651
$\bar{\nu}_2$	1.59939	1.58435	1.57793	1.54601	1.52086
\bar{N}_γ	7.70655	7.67067	7.68255	7.66869	7.65534

Table 3: The dependence of $\bar{\nu}$, $\bar{\nu}_1$, $\bar{\nu}_2$ and \bar{N}_γ on x, when dTKE=0.52 is held constant

Variable	x = 0.80	x = 1.00	x = 1.27 (default)	x = 1.30	x = 1.40
$\bar{\nu}$	3.74887	3.77249	3.74896	3.74645	3.71148
$\bar{\nu}_1$	1.34564	1.70729	2.17103	2.22821	2.38825
$\bar{\nu}_2$	2.40323	2.0652	1.57793	1.51824	1.32323
\bar{N}_γ	7.63944	7.65454	7.68255	7.69108	7.70245

Table 4: The dependence of \bar{N}_γ on cs

	cs=0.77	cs= 0.82	cs=0.87 (default)	cs= 0.97	cs= 1.07
\bar{N}_γ	7.4015	7.53367	7.68255	7.95058	8.23856

2 Thermal neutron-induced fission of U235