2.3.2 Neutron energy spectrum

The neutrons that are released during fission have a spectrum of energies as shown in figure 1 where $n(E)dE$ is the fraction of neutrons with energies in the range E to $E + dE$. The distribution in figure 1 is often described by empirical formulae of the type

$$n(E) = 0.453 e^{-1.036E} \sinh\left(\sqrt{2.29E}\right) \tag{1}$$

where E is in units of MeV. This integrates to unity as it must. It follows that, as quoted earlier, the average energy of a fission neutron is $2\ MeV$.
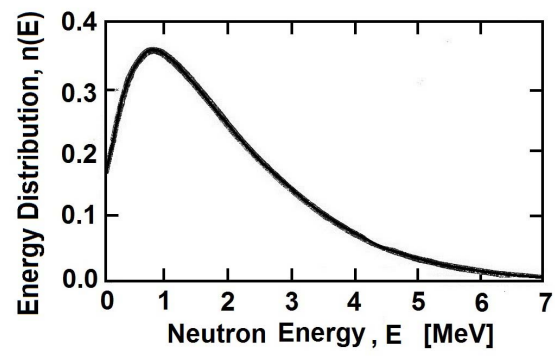

Figure 1: Spectrum, $n(E)$, of neutron energies due to fission.