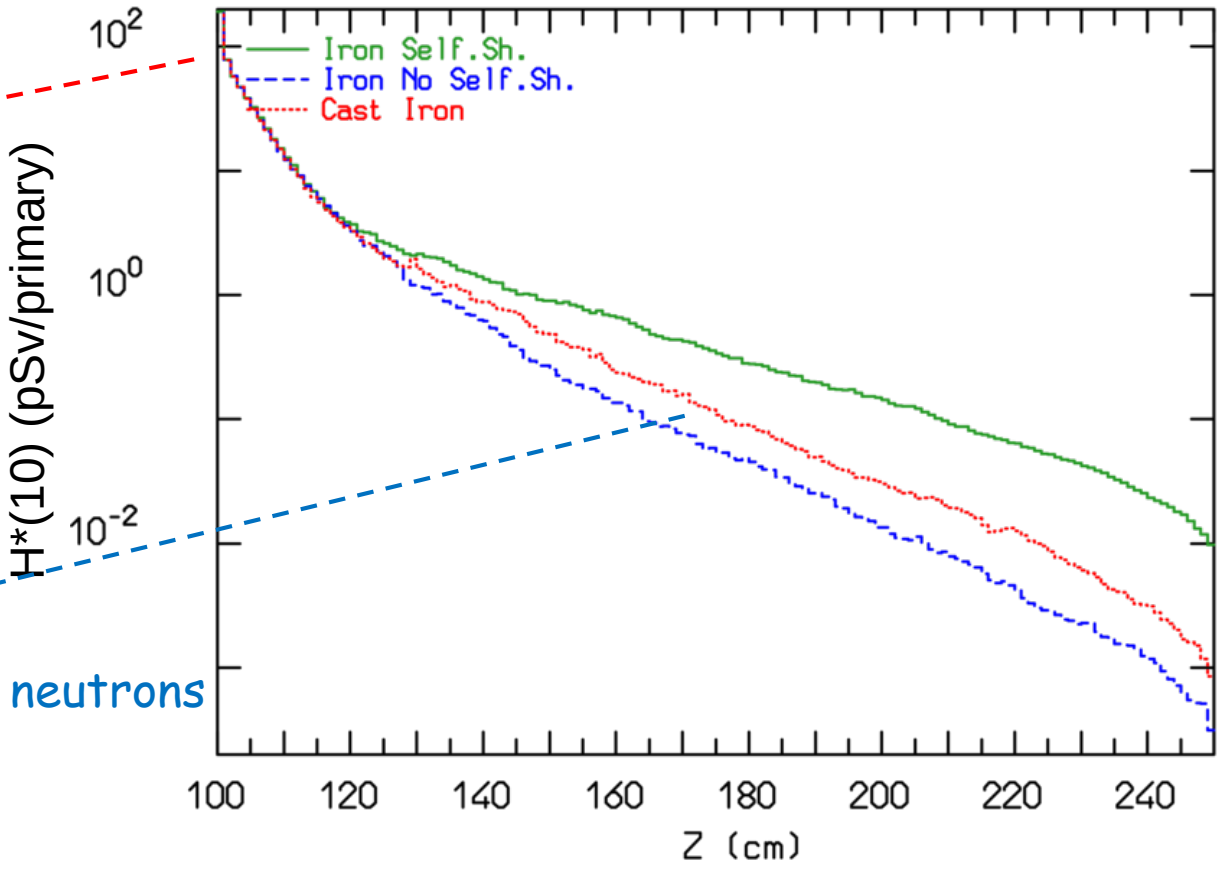
Exercise solution: Materials

Advanced FLUKA Course 2019

Attenuation curves in the frontal wall

Very steep initial attenuation dominated by the EM component and determined by the Iron rad. length

Attenuation dominated by neutrons



H*(10) attenuation curves (out of the 5th USRBIN, `FroH(10)`, in the ex_biasmat.inp file) averaged over the frontal wall for:

Cast iron

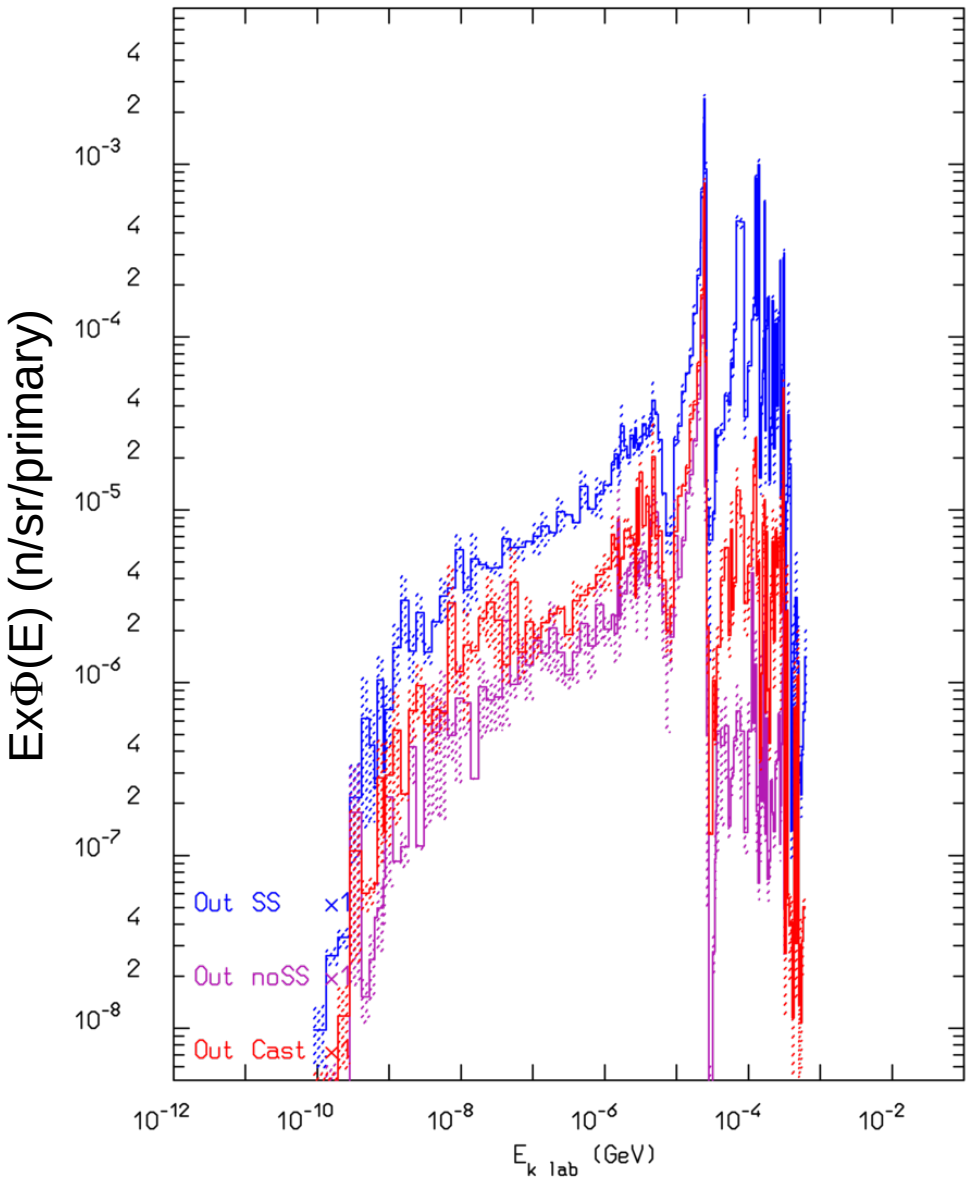
Pure Iron SelfShielded

Pure Iron with no Self Shielding (infinite dilution)

Outgoing neutron spectra

Spectra of neutrons emerging from the shield (out of the 2nd USRBDX, NeuSpe0u, in the ex_biasmat.inp file):

Cast iron
Pure Iron SelfShielded
Pure Iron with no Self Shielding (infinite dilution)



Average and peak DPA in the W target

The average and peak DPA values (out of the 1st USRBIN, `TargtDPA`, in the ex_biasmat.inp file, you can get them easily by plotting this USRBIN in Flair):

- Damage threshold 90 eV:
  - Average value: $7.7 \cdot 10^{-23}$ (DPA/primary)
  - Peak value : $2.0 \cdot 10^{-23}$ (DPA/primary)
- Damage threshold 30 eV:
  - Average value: $3.6 \cdot 10^{-22}$ (DPA/primary)
  - Peak value : $1.0 \cdot 10^{-22}$ (DPA/primary)