



Exercise 7: Importance biasing

Beginners' FLUKA Course

Exercise 7: Importance biasing

- Create a new directory **ex7** and download the *ex5.inp*, rename it to *ex7.inp*

Step 1:

- add a 240 cm thick concrete shield around the target
- calculate neutron fluence inside the shield
add a region-independent scoring mesh (USRBIN) and create a contour plot with FLAIR

Step 2:

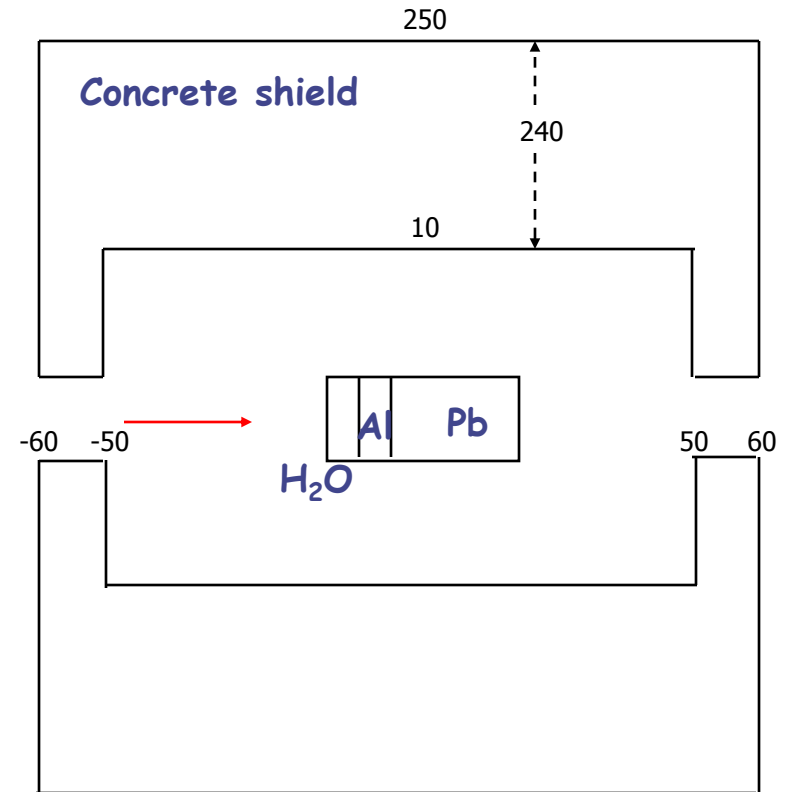
- split lateral shield into 6 layers of 40 cm thickness each and assign region importance factor to each layer such that the importance increases between adjacent layers by a factor of two
- calculate again the neutron fluence inside the shield, *create contour plot* and compare to case without region importance biasing

Tip: you can create a `#define BIAS` variable and enclose the `BIASING` cards with `#if BIAS...#endif` cards. Then create a second run in the Run Frame with the BIAS disabled

Concrete: (mass fraction)

| | | | |
|-----------|-------|-----------|-------|
| Hydrogen | 0.01 | Aluminum | 0.034 |
| Carbon | 0.001 | Silicon | 0.337 |
| Oxygen | 0.529 | Potassium | 0.013 |
| Sodium | 0.016 | Calcium | 0.044 |
| Magnesium | 0.002 | Iron | 0.014 |

Density: 2.42g/cm³



Exercise 7

Result

