



Exercise 3: Geometry - I

FLUKA Beginner's Course

Exercise: Geometry - I

Aim of the exercise:

- 1- Edit geometry using Flair
- 2- Debug using Flair
- 3- Debug via GEOEND card

Exercise: Geometry - I

- ❑ Start a new project based on the **basic** input template
- ❑ Save the project in a new directory "**ex3**" with the name "**ex3**"
- ❑ Replace the finite cylinder with an infinite one

use a ZCC body for the cylinder

use two XYP planes, at $z=0$ "Ztlow". and $z=10.cm$ "ZThigh", to cut it

re-define the regions TARGET and VOID

- ❑ Look at the new geometry using the Geometry Editor

Exercise: Geometry - I

- ❑ Segment the target in 3 parts by two transverse cuts
- ❑ Define 3 target regions
- ❑ Assign new materials to the targets
- ❑ Set surrounding medium to CO2 (density = 0.001965 g/cm³)

| <i>From</i> | <i>To</i> | <i>Region</i> | <i>Material</i> | <i>Tip</i> |
|-------------|--------------|---------------|-----------------|-------------------------------|
| <i>z=0.</i> | <i>z=1.</i> | <i>TARGS1</i> | <i>Water</i> | <i>new XYP needed "T1seg"</i> |
| <i>z=1.</i> | <i>z=2.</i> | <i>TARGS2</i> | <i>Aluminum</i> | <i>new XYP needed "T2seg"</i> |
| <i>z=2.</i> | <i>z=10.</i> | <i>TARGS3</i> | <i>Lead</i> | <i>no more bodies needed</i> |

Air, Water, Aluminum, and Lead are predefined materials

Exercise: Geometry - I

Runing FLUKA debug through Flair

- Edit the GEOEND card to define a 1mm grid from $(x,y,z)=(-6., -5., -1.)$ to $(x,y,z)=(6., 5., 11.)$

Tip: put a STOP card after GEOEND card

Search the manual (F1 on flair) for GEOEND card

- Run and search for *Geometry debugging* in the .out file:
enjoy the lack of errors