



# Exercise 2: Materials

FLUKA Beginner's Course

# Exercise 2: Materials

## **Aim of the exercise:**

- 1- Learn how to assign material to an object
- 2- Learn how to define your own materials

# Exercise 2: Materials

Copy the input file from the previous exercise in a new directory:

```
mkdir ex2 ; cp ex1/ex1.inp ex2/ex2.inp ; cd ex2
```

Use a text editor (e.g. `emacs ex2.inp &`) to edit the input file and...

- ❑ add two compound materials: BEER and CO<sub>2</sub>
- ❑ assign respectively to target (TARGET) and surrounding region (VOID)

Tip: use predefined FLUKA materials as components

- BEER composition (MASS content):  
90 % WATER , 10 % ETHANOL (CH<sub>3</sub>CH<sub>2</sub>OH)
- BEER density: 1 g/cm<sup>3</sup>
- CO<sub>2</sub> density: 0.001965 g/cm<sup>3</sup>

Run ex2.inp with 5000 primaries: `$FLUPRO/flutil/rfluka -M3 ex2`

Compare with the previous exercise (ex1 directory):

- ❑ The energy deposited into the target and the region around it
- ❑ The probability that a primary proton undergoes an inelastic collision (BEAMPART Star Density in the .out file)