



# Exercise 1: Basic Input

FLUKA Beginner's Course

# Exercise: Basic Input

## **Aim of the exercise:**

- 1- Familiarize yourself with the different input file formats
- 2- Familiarize yourself with the FLUKA output file (.out)

# Exercise: Basic Input

## Proton beam impinging on a lead cylinder

Get the source example files from the course website:

<https://indico.cern.ch/event/442634/timetable>

Create the **ex1** directory

Download all the **ex1\*.inp** files to **ex1** directory

Different input formats:

Filename	Input		Geometry		Comments
<b>ex1.inp</b>	Fixed	Names	Free	Names	RECOMMENDED
ex1free.inp	Free	Names	Free	Names	
ex1_numBased.inp	Fixed	Numbers	Fixed	Numbers	DEFAULT
ex1_numBasedDouble.inp	Fixed	Numbers	Fixed high precision	Numbers	
ex1_numBasedFree.inp	Free	Numbers	Fixed	Numbers	

# Exercise: Basic Input

Run ex1.inp in the ex1 dir:

```
$FLUPRO/flutil/rfluka -N0 -M4 ex1
```

Look at the .out file with **less** or any text editor e.g. **emacs**, **vi**

(FLUKA mode available for emacs and vi on the web page

<http://www.fluka.org/fluka.php?id=tools&mm2=5>)

```
less ex1001.out
```

- ❑ Find the inelastic scattering length for beam particles in the target
- ❑ Determine #primaries needed to have a run lasting 240 seconds in total and having 4 cycles
- ❑ Find the fraction of energy leaving the system
- ❑ Calculate the power leaving the system for a beam current of 4 mA (in S.I. units)