



Exercise 1: Basic Input

FLUKA Beginner's Course

Exercise 1: Basic Input

Aim of the exercise:

- 1- Familiarize with different input file format
- 2- Familiarize with FLUKA output file (.out)

Exercise 1: Basic Input

Proton beam impinging on a lead cylinder

Get the source example files from the course website:

<http://www.fluka.org/fluka.php?id=course&sub=program&navig=2&which=jlab2012>

Create the **ex1** directory

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

Different input formats:

| Filename | Input | | Geometry | | Comments |
|------------------------|-------|---------|----------------------|---------|-------------|
| ex1.inp | 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 1: 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)