



Exercise 1: Basic Input

Beginners FLUKA Course

Exercise 1: Basic Input

Proton beam impinging on a cylinder of pre-def material

Get the source example files from the course website

<http://www.fluka.org/fluka.php?id=course&sub=program&which=demokritos2009>

Download all the **ex1*.inp** files to ~/work/ex1 directory

Different input formats:

- **ex1.inp** fixed card format free geometry format
(RECOMMENDED)
- ex1free.inp free card format free geometry format
obsolete (but supported)
- ex1fix.inp fixed card format fixed geometry format **(DEFAULT)**
- ex1double.inp fixed card format high-accuracy fixed geometry format
- ex1fixfree.inp free card format fixed geometry format

Exercise 1: Basic Input

run ex1.inp in the ex1 dir

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

look at the .out file

```
$emacs [or any editor] ex1001.out &
```

- ❑ find the inelastic scattering length for beam particles in the target
- ❑ convert the beam momentum spread into energy spread (in MeV)
- ❑ determine how many primaries are needed to have a run (with 4 cycles) lasting in total as many minutes as the number of neutrons of the ${}^6\text{He}$'s isotope
- ❑ find the fraction of energy leaving the system
- ❑ calculate the power leaving the system for a beam current of 4mA (in S.I. units)