Exercise 8: User Routines

Beginners FLUKA Course

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create a folder called ex08, download the solution of **ex5** (only **ex5.inp**) from the website, rename it to **ex8.inp** and open in *flair*
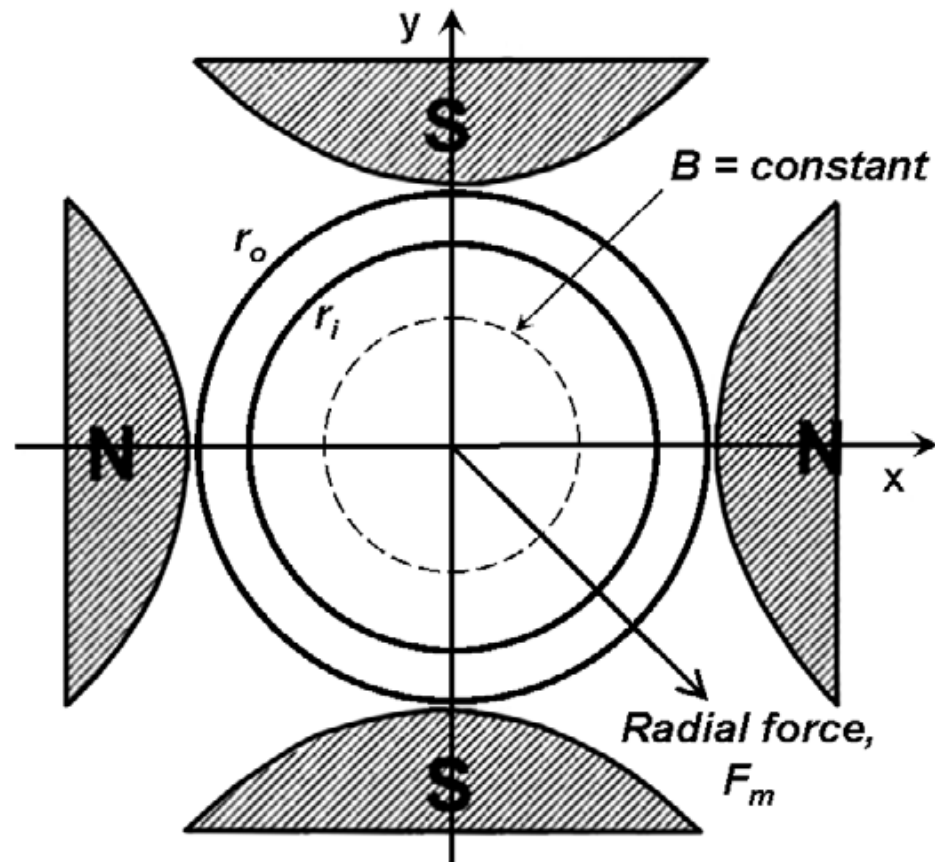
Copy the *source.f* and *magfld.f* user routines from **$FLUPRO/usermvax** to **~/work/ex08**

in the source.f routine, sample the proton kinetic energy between 30 and 70 MeV from the a flat energy spectrum

score differential proton fluence at the target entrance in order to check the beam spectrum (USRBDX)

advanced:

move the beam axis by 1 cm along the y axis and assign vacuum to the first two target segments

- in the *magfld.f* routine, implement a quadrupole magnetic field with a gradient of 1 T/cm focusing (positive particles) along the horizontal axis

score integral fluence of positive and negative particles in the target in order to appreciate the magnetic field effect

$$B = k\,r\,; \quad \cos_{B_z} = 0\,; \quad \cos_{B_x} = \frac{x}{r}\,; \quad \cos_{B_y} = \frac{y}{r}$$