



# Exercise 14

FLUKA Tutorial

# Exercise 14

## .Study case

Nuclear Medicine application

## .Goal

Import the DICOM CT image in FLAIR and convert it in a VOXEL geometry, define a  $^{90}\text{Y}$  USRBIN energy scoring as the patient volume and define a spherical Y source.

## .Requirements

### .Settings:

.ISOTOPE sdum in the BEAM card.

.DEFAULTS card with EM-CASCA.

.Define Y in the HI-PROPE card (A=90 and Z=39).

.Define a spatially extended source shaped as a sphere using the BEAMPOS card (SDUM = SPHE-VOL).

.Radioactive decays activated in semi-analogue mode (RADDECAY).

.GLOBAL card in case you want to increase the maximum number of regions (useful with VOXEL geometry starting from DICOM CT images).

### .Scoring:

.Define Cartesian scoring for absorbed energy via the USRBIN card with the same dimension of the patient CT but with NBINX=NBINY=256.

<sup>5</sup>  
Run 5 cycles of 10 histories each.