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 USRBIN energy scoring in the patient volume and define a spherical ^{90}Y source.

.Requirements

    .Settings:

        .DEFAULTS card with EM-CASCA.

        .ISOTOPE sdum in the BEAM card.

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

        .Define a spatially extended source shaped as a sphere in the head 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. NBINZ=275.

Run 5 cycles of 10^5 histories each.