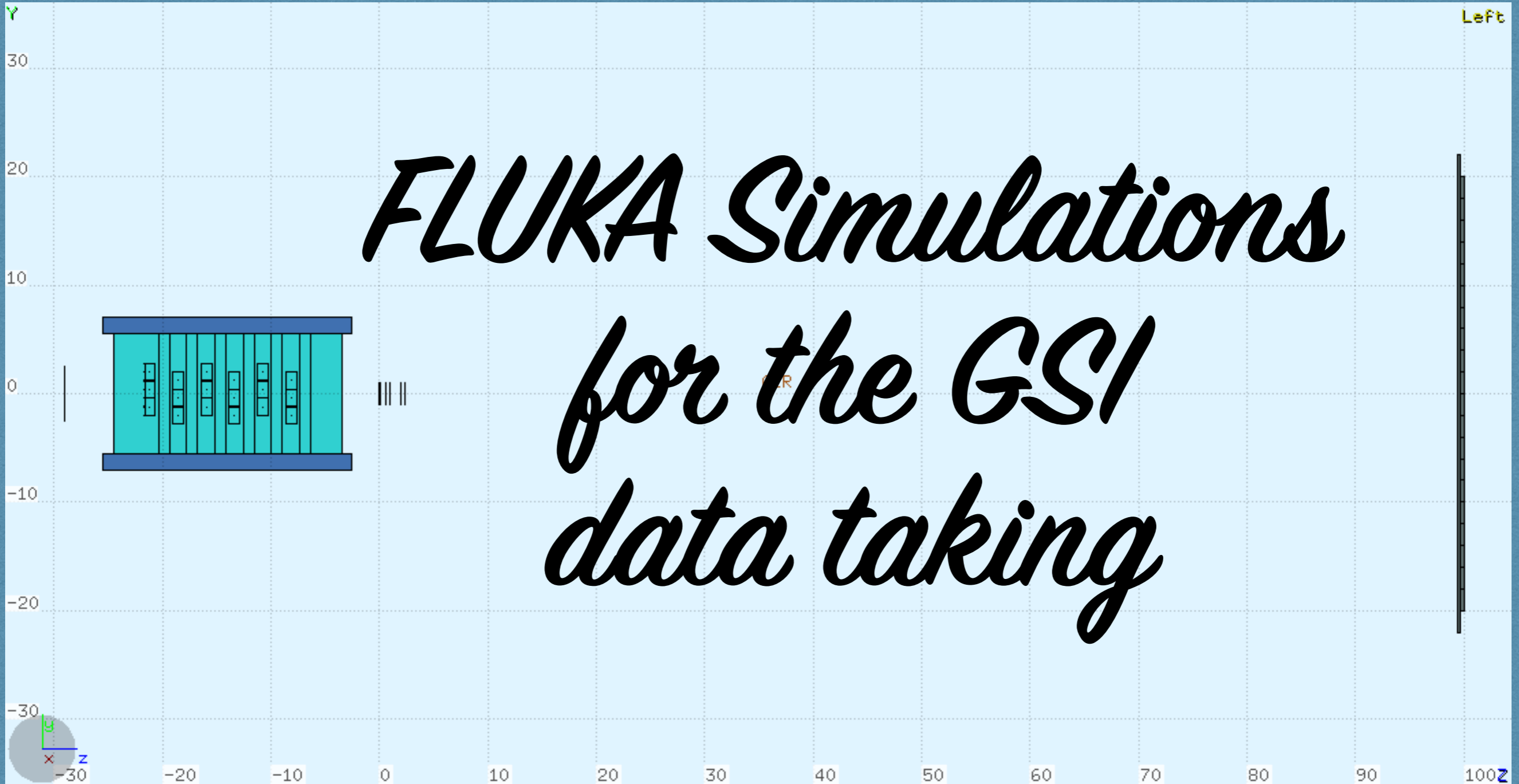# FLUKA Simulations for the GSI data taking

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Status (I)

- FLUKA input files (inp and geo) can be easily generated through the makegeo executable, which is automatically produced when compiling shoe (thanks to Christian).

- Geometry of all the detectors that will be used at GSI data taking has been implemented in the TA*parGeo classes. These detectors can be switched on/off through the FootGlobal.par file. Detectors not included in GSI experimental setup have not been implemented for FLUKA yet (so don't tactivate them in the FootGlobal file, makegeo won't care anyway).

- VTX geometry in FLUKA includes also the non active zones (not in ROOT geo). This is also true for the STC (mylar windows).

- Removed the digitization from the simulation side for all the pixel and strip detectors.

Status (II)

- Target and beam parameters can be modified in the TAGdetectors.map file: the TAGparGeo classe takes care of producing the correct target, beam and physics cards needed by FLUKA.

- The TAGmaterial class provides the implementation of the materials (many thanks to Alessio who helped me a lot). We still have some problems due to material definition (which, in FLUKA, is strictly related to some cross section to be used by the code when performing particles transport in that material). This issue will be solved but is not mandatory to start a production of the simulation for the GSI.

- For the future: magnetic field is switched on/off if the TADI is included/not included in FootGlobal.

Simulation production

- Few ntuples with low statistics have been produced to test that the whole chain (from simulation to reconstruction) works properly. The results seems encouraging.

- We are ready to start a massive production. The simulations will be produced directly in the GSI cluster, so that they will be available *in loco* during the data taking.

- Oxygen @ 200 MeV/n will be our priority, so I suggest to start with this beam.

- However different combinations of beam particle, beam energy, target materials and geo setups (*e.g.* SCN at different distances) can be explored. Both triggered and untriggered (*i.e.* write only fragmentation events or all the events) simulations can be produced as well.

- A list of requested simulation should be the outcome of this presentation and consequent discussion :)