

Technology Transfer Track Posters

GEOUNED

GEOUNED is a software tool that transforms CAD models into Monte Carlo (MC) radiation transport models, with the ability to convert back to CAD. It is an open-source tool, accessible, easy-to-install, that uses Open CASCADE as its geometry engine and FreeCAD as its Python API.

The software stands out for its features like decomposition and automatic void generation, especially beneficial for intricate 3D models in fusion neutronics like the ones found at ITER.

The decomposition algorithm allows to decompose complex CAD solids into parts that can be converted to Monte Carlo formats. On the other hand, standard automatic void generation has been extended to include an innovative feature that allow the generation of void regions from complex CAD enclosures defined by the user. This feature generates cleaner and hierarchical void structures more suitable for large models that usually includes the whole facility.

It has been developed as a Python API, to allow scripting capabilities for task automation. It uses open-source codes such as Open CASCADE and FreeCAD, making it an easy-to-install and more accessible tool.

Benefits of the technology:

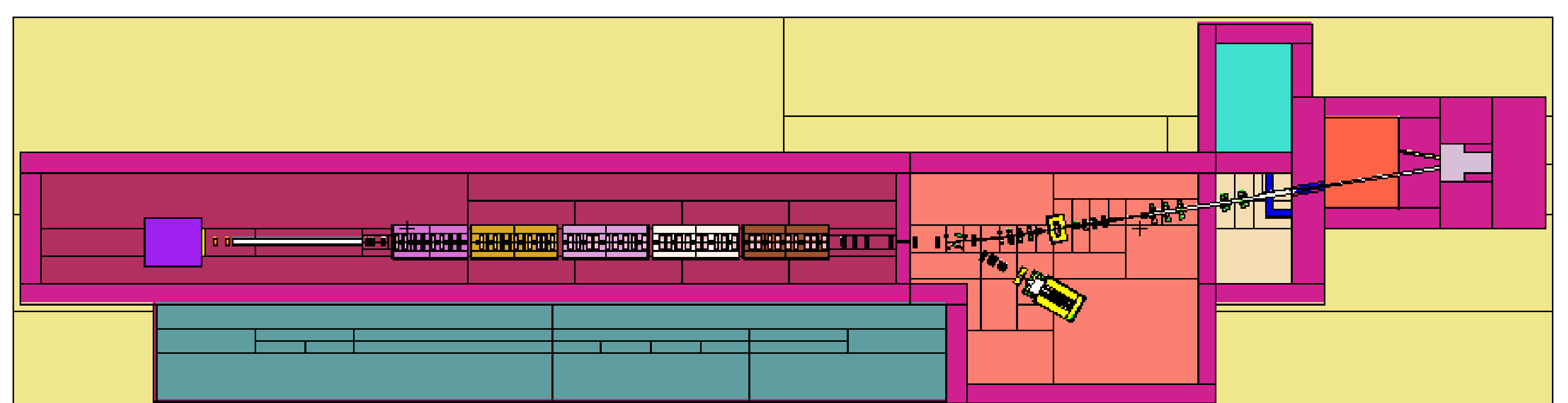
- Open-source software, easy to install.
- Automatic void generation algorithm that saves time and reduces human error.
- Helpful for any field that requires radiation transport simulations.

Application Areas:

- Nuclear Fusion and Fission Research.
- Nuclear Medicine: Assists in designing shielding for medical isotopes or radiation therapies.
- Radiation Protection design.
- Material Testing in nuclear environments.
- Nuclear decommissioning.



**FUSION
FOR
ENERGY**



BOOTH n. / HALL 28 - 27

Reference person

Miguel Estruch (Broker for F4E)

Contacts

technologytransfer@f4e.europa.eu

www.fusion-technology-transfer.europa.eu



Download BSBF2024 app
for live chat

If you like this poster, download the BSBF2024 app to vote for it and live chat