Contribution ID: **31**   Type: **not specified**

Automatic generation of superconducting magnet input files for the LEDET software

Friday 11 October 2019 16:05 (15 minutes)

A SWAN notebook was developed, which automatically generates input files for a tool of the STEAM framework (https:\\cern.ch\steam) called LEDET, which is used to simulate electromagnetic and thermal transient in superconducting magnets. This program was used to simulate quench transients in more than 25 magnets for LHC, HL-LHC, FCC, and other project. In the coming years, it is expected to complete a library of all LHC and HL-LHC magnet models.

The SWAN notebook is used as a front-end to acquire input data from other sources, manually define parameters, perform repetitive actions needed to generate models, visualize the most relevant defined parameters, and finally generate a LEDET input file, which is an Excel worksheet.

The main advantages of generating LEDET files through the SWAN notebook are the possibility to develop input files quickly and easily; reduce the probabilities of mistakes thanks to the visualization of the defined parameters; version of the model generation scripts, for example using Gitlab; generate magnet model used by different users with the same features; and rapidly update reference models in case of new developed features, giving uniformity among different magnets models.

In the first months after its development, the developed SWAN notebook was used by seven users from different laboratories to generate a dozen magnet models.

Authors: MURGIA, Federica (Universita e INFN, Bologna (IT)); MACIEJEWSKI, Michal (CERN); Dr RAVAIOLI, Emmanuele (CERN); VERWEIJ, Arjan (CERN)

Presenter: MURGIA, Federica (Universita e INFN, Bologna (IT))

Session Classification: User's use cases