Contribution ID: **225** Type: **Poster**

The ISOLPHARM_Ag approach to parallelize MonteCarlo simulations on Kubernetes

Tuesday, 4 June 2019 16:02 (1 minute)

ISOLPHARM is an INFN patented methodology for the production of high specific activity radionuclides by means of the ISOL technique at the SPES facility of INFN-LNL laboratory. In the context of the ISOLPHARM collaboration, ISOLPHARM_Ag is a two-year INFN activity to study and demonstrate, as a proof of principle, the production and use of a particularly promising silver isotope (111Ag). The radionuclides of 111Ag would then allow the study of their possible application as a radiopharmaceutical precursor. To predict the production and release of 111Ag from the ISOLPHARM primary target, the execution of a set of specific MonteCarlo simulations is needed.
We present the advanced Cloud-based computing infrastructure that was designed and implemented to allow users to submit their FLUKA and Geant4 based simulation jobs on Cloud (in particular the CloudVeneto infrastructure) and then collect the produced data.
This is a generic MonteCarlo environment that enhances the simulation's execution by parallelizing its code. Our solution fully takes advantage of the Kubernetes (K8S) capabilities achieving the required level of flexibility and control by implementing a specific K8S operator.
While presenting the ISOLPHARM_Ag computing architecture, we will focus on how we implemented the K8S operator to provide a common mechanism to parallelize FLUKA and Geant4 simulations on Cloud.

Primary author: ZANGRANDO, Lisa (PD)

Co-authors: VERLATO, Marco (PD); SGARAVATTO, Massimo (PD)

Presenter: ZANGRANDO, Lisa (PD)

Session Classification: Poster

Track Classification: Tecnologie innovative hardware e software