Contribution ID: **201**   Type: **not specified**

Nuclear cross section measurements of the theranostic radionuclide Sc-47: Preliminary results of the PASTA project

Wednesday, 5 September 2018 14:10 (20 minutes)

In the framework of the SPES project at INFN-LNL, the LAboratory of RAdionuclide for MEDicine (LARAMED) program is focused on the production of innovative radionuclides of medical interest by exploiting the new 70 MeV proton cyclotron, installed in 2015. Among the various radionuclides of interest, the ones with theranostic application are in the spotlight, thanks to their potential use both in diagnostic and therapy by using the same radiopharmaceutical. The main advantage of theranostic isotopes, and consequently theranostic radiopharmaceuticals, is the selection of patients prior the treatment with a higher chance to positively respond to the specific therapy. The International Atomic Energy Agency (IAEA) has recently focused an international Coordinated Research Project (CRP) on the topic "Therapeutic Radiopharmaceuticals Labelled with New Emerging Radionuclides (67Cu, 186Re, 47Sc)". The INFN participates to this CRP through the LARAMED program and various satellite projects, focused on specific radionuclides, such as COME (COpper MEasurement, funded in 2016 by CSN3 Dotazioni LNL) and PASTA (Production with Accelerator of Sc-47 for Theranostic Applications, funded by CSN5 as Grant Giovani for the years 2017-2018). The aim of the PASTA project is answering to the following question:
is it possible to produce 47Sc for theranostic applications by using proton beams? Different nuclear reactions are explored in collaboration with the Arronax facility for the irradiation runs, with the University and INFN section of Ferrara for the radiochemical process to separate Sc from the irradiated material and with the INFN-PD and INFN-PV sections to compare various theoretical models (such as Fluka, Empire, Talys) with the experimental data. The first preliminary outcomes of the PASTA project will be presented in this work.

Primary author: PUPILLO, Gaia (LNL)

Presenter: PUPILLO, Gaia (LNL)

Session Classification: Nuclear Physics Applications