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The LARAMED project at INFN Legnaro National labs

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In the framework of INFN SPES (Selective Production of Exotic nuclear Species) special project, aimed the new frontier of nuclear physics research of unstable nuclei, the creation of a center for innovative radionuclides production for radiopharmaceuticals is also pursued. Such a dedicated project, called LARAMED (Laboratory of RAdionuclides for MEDcine) will take advantage of the high performance SPES proton cyclotron (70 MeV, 750 microamps) which will be available at INFN LNL in the next coming years. The main goals of LARAMED project cover different topics, ranging from nuclear physics (excitation function experimental measurements), to engineering aspects (high power production targets) and radiochemistry issues (improvements of separation purification techniques). It will be a first step towards interdisciplinary researches directed to innovative radionuclides production, such as 64/67Cu, 82Sr/82Rb, 68Ge/68Ga which are of interest in nuclear medicine for diagnostic and therapy applications. Moreover studies and efforts are currently underway to start alternative accelerator-driven direct production of 99Mo/ 99mTc, (the most important and widely used radionuclide in nuclear medicine so far) according to pharmacopeia GMP rules, from 100Mo(p,xn) reactions. The goal is to get enough production to fulfill the hospital needs in north-east of Italy. Such researches will be a possible evolution of activities at Legnaro labs in the next years, which are a recognized excellence center in nuclear physics and nuclear astrophysics researches, towards a system where basic science and technological applications coexist and provide synergy to each other.

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