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Scientific research activity at the Open Laboratory of Nuclear Physics of the University of Sao Paulo, Brazil

The Open Laboratory of Nuclear Physics (LAFN, acronym in Portuguese) is the only accelerator laboratory in Brazil with research in basic and applied nuclear physics, and one of the in South America. It has a 8MV Pelletron tandem accelerator and its main experimental facility is the Radioactive Ion Beams in Brasil (RIBRAS) system [1]. It is the first RIB facility in the Southern Hemisphere, and the only in Latin America. Consists of a double superconducting solenoid system, which produces RIB by transfer reactions and purifies them with a degrader between both solenoids. The radioactive beams we produce currently are: ${}^6\text{He}$, ${}^7\text{Be}$, ${}^8\text{Li}$, ${}^8\text{B}$, ${}^{10}\text{Be}$, ${}^{12}\text{B}$ with intensities between 103-106 pps and with energies up to 3-5 MeV/n. Our main interest is the reaction mechanism with cluster structured weakly bound projectiles, the effect of the breakup on the other reaction channels. This subject is also studied with stable weakly bound beams as ${}^6,7\text{Li}$, ${}^9\text{Be}$, and with particle-gamma coincidences. I will present our actual results and our plans for the future.

[1] A. Lépine-Szily, R. Lichtenthäler, V. Guimaraes Eur. Phys. J. A (2014) 50:128

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