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Radioactive ion beam production yields using 1.4- and 1.7-GeV protons at CERN-ISOLDE

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CERN-ISOLDE is among the world-leading isotope separation on-line (ISOL) facilities providing radioactive-ion beams (RIBs) for research. ISOLDE's versatility is driven by a 1.4-GeV proton beam delivered by the Proton Synchrotron Booster and its target and ion source repertoire. While more than 1000 isotopes from 76 different elements have been produced at CERN-ISOLDE, user interest often focuses on exotic RIBs that are challenging due to low production and/or low release efficiency from the target-ion source system. As a result, target and ion source developments and facility upgrades for higher quality beams at CERN-ISOLDE are needed to increase the facility's capability. Experimental data shows that by increasing the proton energy, gains in production can be achieved in several regions of the nuclear chart. To validate the expected gain of such an upgrade, a campaign to measure and compare RIB yields using 1.4- and 1.7-GeV protons was recently launched at CERN-ISOLDE. In this contribution we will present the status of this campaign, highlight first experimental results and compare them to theoretical predictions.

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