



Contribution ID: 34

Type: **Contributed Oral**

First Observation of New Isotopes at FRIB

Monday, 19 August 2024 15:05 (15 minutes)

The Facility for Rare Isotope Beams (FRIB) [1] is currently providing primary beams of up to 300 MeV/u (most mid-mass beams are available at about 250 MeV/u) at 10 kW beam power. With this new facility and as the beam power is increased, FRIB is poised to provide access to a wide range of rare isotope beams. In this contribution, the initial results of the observation of new isotopes at FRIB [2] will be discussed. These isotopes were generated through the interaction of a ^{198}Pt beam with a carbon target at an energy of 186 MeV/u and with a primary beam power of 1.5 kW. Particle identification of A , Z , and q for the reaction products was conducted event by event, combining measurements of energy loss, time of flight, magnetic rigidity, and total kinetic energy. These findings are compared to NSCL results with a ^{198}Pt beam at an energy of 85 MeV/u [3]. This successful new isotope search took place within a year of FRIB's initiation, showcasing the facility's discovery potential. FRIB, already providing access to a wide range of rare isotope beams at the current primary beam power level of 10 kW, anticipates reaching the full 400 kW capacity.

References:

1. T. Glasmacher et al., Nuclear Physics News 27,28(2017).
2. O.B. Tarasov et al., accepted in PRL, 2023.
3. K. Haak et al., PRC 108, 034608 (2023).

Funding Agency

DOE DE-SC0023633, NSF PHY-20-12040, PHY-23-10078

Email Address

tarasov@frib.msu.edu

Presenter if not the submitter of this abstract

Primary authors: TARASOV, Oleg B. (FRIB / MSU); Prof. GADE, Alexandra (FRIB / MSU); Dr FUKUSHIMA, Kei (FRIB / MSU); Dr HAUSMANN, Marc (FRIB / MSU); Dr KWAN, Elaine (FRIB / MSU); Dr PORTILLO, Mauricio (FRIB / MSU); Dr SMITH, Mallory (FRIB / MSU); Dr AHN, Deuk Soon (CENS, IBS, Korea); Prof. BAZIN, Daniel (FRIB / MSU); Dr CHYZH, Roman (FRIB / MSU); Dr GIROUD, Simon (FRIB / MSU); Mr HAAK, Kenneth (FRIB / MSU); Dr KUBO, Toshiyuki (RIKEN, Japan); Prof. MORRISSEY, David J. (FRIB / MSU); Prof. OSTROUMOV, Peter N. (FRIB / MSU); Mr RICHARDSON, Isaiah (FRIB / MSU); Prof. SHERRILL, Bradley M. (FRIB / MSU); Prof. STOLZ, Andreas (FRIB / MSU); Mr WATTERS, Shane (FRIB / MSU); Dr WEISSHAAR, Dirk (FRIB / MSU); Dr ZHANG, Tong (FRIB / MSU)

Presenter: TARASOV, Oleg B. (FRIB / MSU)

Session Classification: Nuclear Reactions I

Track Classification: Nuclear Reactions