

## CHARGE EXCHANGE REACTION OF RI BEAM TO POPULATE EXOTIC STATES

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Intense RI beams provide us opportunities for considering them as probes for nuclear reactions, where a variety of isospin ( $T$ ), internal energy (mass excess), and spin ( $S$ ) can be used for studies exotic states in nuclei. Focusing on charge exchange (CX) reactions of RI heavier than the stable isobar, it becomes possible to reach states from stable nuclei that are hardly accessible via the stable-beam induced reactions. Experimental results on the CX reactions using the SHARAQ spectrometer at the RI Beam Factory in RIKEN will be presented including a recent finding of a candidate tetra-neutron resonance populated by the double-charge exchange reaction  ${}^4\text{He}({}^8\text{He}, {}^8\text{Be})$  at 186  $A$  MeV (Phys. Rev. Lett. **116**, 052501 (2016)).