

Abstract Submitted  
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**Studying  $^{10}\text{Be}$  and  $^{11}\text{Be}$  Halo States through the (p,d) Single-Neutron Transfer Reaction**<sup>1</sup> KERI KUHN, FRED SARAZIN, Colorado School of Mines, (PCB)<sup>2</sup> COLLABORATION, TIGRESS COLLABORATION — One-neutron transfer reactions are being used to study single-particle neutron states in nuclei. For one-neutron halo nuclei, such as  $^{11}\text{Be}$ , the (p,d) reaction enables the removal of the halo neutron or of one of the core neutrons. This way, it is possible to simultaneously study the halo wavefunction of the  $^{11}\text{Be}$  ground-state but also a possible excited halo state in  $^{10}\text{Be}$ . The  $^{11}\text{Be}(p, d)^{10}\text{Be}$  transfer reaction at 10 MeV/nucleon is being investigated at the TRIUMF-ISAC II facility with the Printed Circuit Board Based Charged Particle ((PCB)<sup>2</sup>) array inside the TRIUMF ISAC Gamma-Ray Escape-Suppressed Spectrometer (TIGRESS). The ground state and first excited state of  $^{10}\text{Be}$  can be directly identified using deuteron identification and kinematics from the charged particle array, while the four excited states in  $^{10}\text{Be}$  around 6 MeV, including the suspected halo state ( $2^-$  state), are identified using coincident gamma rays from TIGRESS with the identified deuterons. Angular distributions for the  $^{10}\text{Be}$  populated states will be shown along with their FRESCO fits.

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