

Abstract for an Invited Paper  
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**Radioactive beam experiments at ORNL.**

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Radioactive  $^{17}\text{F}$  and  $^{18}\text{F}$  ion beams have been produced at the Holifield Radioactive Ion Beam Facility at Oak Ridge National Laboratory. The radioactive fluorine beams were made by an Isotope Separator On-Line (ISOL) technique and accelerated by the 25 MV tandem. The highest intensity achieved was  $2 \times 10^6$  pure  $^{17}\text{F}$  ions per second and  $6 \times 10^5$   $^{18}\text{F}$  ions per second (with  $^{18}\text{O}$  contamination) on target. There were six experiments performed with these beams. Excitation functions of  $\text{F}(p,p)$  and  $\text{F}(p,\alpha)$  were measured to study resonances and reaction rates of astrophysical interest. Simultaneous two-proton decay from an excited state in  $^{18}\text{Ne}$  populated by  $^{17}\text{F}+p$  was observed. The  $^{17}\text{F}$  breakup cross section was measured by bombarding a  $^{208}\text{Pb}$  target with a 170 MeV  $^{17}\text{F}$  beam to study the reaction mechanism. Highlights of each experiment will be presented.

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