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**Capture and loss correlated to x-ray emission in  $O^{5+}$  on Ar collisions** T. ELKAFRAWY, A. KAYANI, J.A. TANIS, Department of Physics, Western Michigan University, Kalamazoo, Michigan 49008, USA — K x rays emitted from projectile and target atoms correlated to projectile capture and loss charge states were investigated for 18 and 25 MeV  $O^{5+}$  on Ar collisions. Single capture coincidences are of interest as they translate to a target electron transferred to the projectile ion causing excitation followed by x-ray emission. Such a process is the signature for resonant charge transfer and excitation followed by x-ray emission (RTEX). We plan to cover the energy range for such RTEX cross sections. Heavy targets like Ar are not commonly used so we seek to test RTE theory for such targets. It is also planned to run for  $O^{7+}$  to increase the capture probability. We are planning to measure single loss coincidences as well so we can study projectile ionization associated with projectile and target K-x-ray emission. In the case of Li-like O, K emission correlated with  $O^{6+}$  can be obtained by K-shell ionization accompanied by  $2s \rightarrow 2p$  (or higher) excitation followed by a  $2p \rightarrow 1s$  decay, or the same emission line can be obtained from K-shell excitation to  $2p$  (or higher) accompanied by ionization of the  $2s$  electron. On the other hand, Ar K emission can be obtained by K-shell ionization followed by  $2p \rightarrow 1s$  or  $3p \rightarrow 1s$  decay, or possibly by K-shell excitation to  $3d$  or higher levels.

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