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PROJECTILE K X RAYS AND REGION OF COHERENT ELECTRON SPECTROSCOPY FROM CI IONS INCIDENT ON CARBON

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Projectile K X Rays and REC From Cl Ions Incident on Carbon Foils*--J.A. TANIS†, S.M. SHAFROTH and J. WILLIS, University of North Carolina, Chapel Hill, and Triangle Universities Nuclear Laboratory, Durham, and J.R. MOWAT, North Carolina State University, Raleigh--A systematic investigation of projectile K x-ray production has been conducted for Cl ions incident on thin (10-100 μg/cm²) carbon foils. Characteristic x-rays and REC have been measured as a function of target thickness for beam energies of 40, 60 and 80 MeV. Parametrization of the x-ray intensities as a function of target thickness (1,2) gives values for the physical quantities pertinent to the collision. Values obtained are compared with previous results for Cl ions striking thin Cu targets. We find that Cl K-vacancy production in C targets is about half that observed for Cu targets. REC cross sections in C are about 2-3 times smaller than those observed in Cu which is consistent with the Bethe-Salpeter theory if it is assumed that each electron contributes equally to capture.

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