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### Title

Projectile K X Rays and Rec From C1 Ions Incident on Carbon

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Abstract

PROJECTILE K X RAYS AND RECOIL  
FROM C1 IONS INCIDENT ON CARBON

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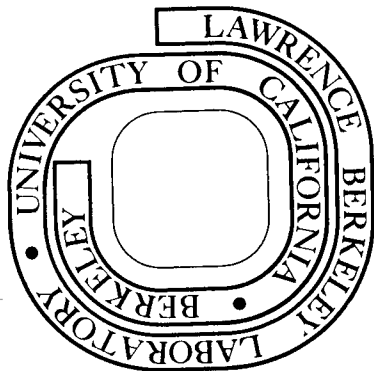
J. A. Tanis, S. M. Shafroth,  
and J. Willis

January 1979

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**For Reference**

**Not to be taken from this room**



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Bulletin Subject Heading  
in which paper should be placed:  
X Rays, Ion-Atom Collisions

Projectile K X Rays and REC From Cl Ions Incident on Carbon Foils\*--J.A. TANIS<sup>†</sup>, 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  $\mu\text{g}/\text{cm}^2$ ) 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 <sup>(1,2)</sup> 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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1. H.D. Betz, et al., Phys. Rev. Lett. 33, 807(1974).  
2. J.A. Tanis and S. M. Shafroth, Proceedings of Small Accelerator Conf., Denton, TX (1978), to be published.

Submitted by

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