

Abstract Submitted
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K-Shell Photoabsorption Studies of the Carbon Isonuclear Sequence¹ M.F. HASOGLU², SH. A. ABDEL-NABY, T.W. GORCZYCA, Western Michigan University, B.M. MCLAUGHLIN, The Queen's University of Belfast, J.J. DRAKE, Harvard-Smithsonian Center for Astrophysics — Photoabsorption cross sections for the isonuclear C - C³⁺ ions have been computed using an R-matrix method with the inclusion of important Auger broadening effects. Comparison with existing C⁺, C²⁺, and C³⁺ experimental results for the lowest $1s \rightarrow 2p, 3p$ resonances shows good agreement in general for the resonance strengths and widths, but the computed resonance positions differ from the observed positions by as much as 0.45 eV. Higher np resonances and the above-threshold K-shell photoionization cross sections are also computed in order to produce an entire absorption profile as a function of X-ray photon energy. These computed cross sections are used to model the *Chandra* X-ray absorption spectrum of the blazar Mkn 421 near the carbon K-edge, thereby obtaining instrumental and interstellar carbon-ion abundances.

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