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The role of metastable levels in Be-like ionization cross sections STUART LOCH, Auburn University, CONNOR BALLANCE, Rollins College, MICHAEL PINDZOLA, Auburn University, MIKE FOGLE, MARK BANNISTER, Oak Ridge National Laboratory — We present recent experimental measurements and theoretical calculations for the electron impact ionization cross sections of C^{2+} , N^{3+} and O^{4+} , with a view to studying the role of metastable levels. The theoretical calculations consist of R-matrix with pseudostates results for both the ground $1s^2 2s^2 1S$ and the metastable $1s^2 2s2p 3P$ terms. We compare this with distorted-wave calculations, to determine the point along the iso-electronic sequence at which non-perturbative methods are appropriate. The experimental measurements were taken at the Oak Ridge National Laboratory, using a crossed-beam technique. A gas attenuation method was used to experimentally measure the metastable fraction. We compare these measurements with the metastable fractions inferred from our theoretical calculations.

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