Charged-particle impact of quasi-two electron atoms[1] KLAUS BARTSCHAT, XIAOXU GUAN, DANIEL WEFLEN, Drake University — We have applied a hybrid method, combining a second-order distorted-wave method for a fast ionizing projectile with an R-matrix (close-coupling) approach for the initial bound state and the ejected electron [1, 2], to calculate electron and positron impact ionization of helium, magnesium, and calcium. Our results will be compared with recent experimental data and predictions from other theoretical approaches. For various kinematical situations, in-plane and out-of-plane, we analyze the sensitivity of the theoretical results to the details of the computational models, as well as the projectile charge. New benchmark experiments to test the various theoretical approaches will be suggested.

[1] Y. Fang and K. Bartschat, J. Phys. B **34** (2001) L19.
[2] K. Bartschat and O. Vorov, Phys. Rev. A **72** (2005) 022728.

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