

Abstract Submitted
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Effect of cascade transitions after electron-impact excitation of Zn by spin-polarized electrons.¹ KLAUS BARTSCHAT, OLEG ZATSARINNY, Drake University, DMITRY FURSA, CHRISTOPHER BOSTOCK, IGOR BRAY, Curtin University, ALEXEI N. GRUM-GRZHIMAILO, Moscow State University — We investigate the possible effect of cascade transitions from the $(4s5p)^3P_{0,1,2}$ states to the $(4s5s)^3S_1$ state of Zn. The polarization of the light emitted in the subsequent decay to the $(4s4p)^3P_{0,1,2}$ states has been the subject of recent controversy, with significant disagreement between the experimental data reported by Pravica *et al.* [1] and by Clayburn and Gay [2] in the cascade-free region below ≈ 7.6 eV incident energy and relatively good agreement above. The cross sections for excitation of the $(4s5p)^3P_{0,1,2}$ states and the linear polarization of the cascade radiation seem too small to produce a significant alignment of the $(4s5s)^3S_1$ state, thereby raising additional questions regarding the origin of the relatively large linear polarizations measured above the cascade threshold. [1] L. Pravica *et al.*, Phys. Rev. A **83** (2011) 040701. [2] N. B. Clayburn and T. J. Gay, Phys. Rev. Lett. **119** (2017) 093401.

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