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Integrated Stokes Parameter Measurements of Zn Polarized-Electron Impact Excitation¹

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Integrated Stokes parameter measurements of the fluorescence resulting from transversely-spin-polarized electron impact excitation of the Zn $(4s5s)5^3S_1$ state have been made. The atomic Zn target was produced by a Zn oven and a heated effusive channel that directed an atomic beam at right angles to both the fluorescence observation direction and the electron beam axis. In the cascade-free range of excitation between threshold of the $(4s5s)5^3S_1$ excitation and the first cascading $(4s5p)5^3P_J$ threshold, integrated Stokes measurements are consistent with theoretical predictions and inconsistent with other previously reported experimental results [1], [2]. The discrepancy between theory and the aforementioned previous experimental study motivated our investigation. Observed optical excitation functions are also reported and are in good agreement with other independent experimental measurements. [1] N. B. Clayburn and T. J. Gay, Phys. Rev. Lett. **119**, 093401 (2017). [2] L. Pravica et al., Phys. Rev. A **83**, 040701R (2011).

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