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Dipole-dipole polarizability of the cadmium $^1S_0$ state revisited *

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Experimental results and high-level quantum chemical *ab initio* calculations of the static polarizability $\alpha = \alpha(\omega = 0))$ of the cadmium $^1S_0$ state are still in marked disagreement. Here we analyze this discrepancy by using experimentally determined dipole oscillator strength distributions (DOSD). It will be shown that within this procedure the experimentally determined static polarizability α_0 will shift from 49.7 ± 1.6 au to considerably lower values. We now conclude an experimentally determined polarizability of $\alpha_0 = 47.5 \pm 2.0$ au in much better agreement with the latest calculations of $\alpha_0 \approx 46$ au.

Keywords: cadmium, polarizability, DOSD

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