

Abstract Submitted
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Chirally-Sensitive Electron-Induced Molecular Breakup JOAN DREILING, TIMOTHY GAY, University of Nebraska-Lincoln — We present the results of our search for asymmetric interactions between longitudinally spin-polarized electrons and chiral bromocamphor ($C_{10}H_{15}BrO$) molecules. We define the asymmetry as $A = [(I \uparrow - I \downarrow)/(I \uparrow + I \downarrow)]_L - [(I \uparrow - I \downarrow)/(I \uparrow + I \downarrow)]_R$, where $I \uparrow$ ($I \downarrow$) is the current measured for spin-up (spin-down) electrons and the “ L ” and “ R ” subscripts correspond to the left- and right-handed chirality of the molecules. Two electron-molecule interaction channels were studied: electron transmission (related to the total scattering cross section) and dissociative electron attachment (DEA). The asymmetry results for the transmitted current of longitudinally spin-polarized electrons through a vapor of chirally-pure bromocamphor molecules are compared to those of Mayer *et al.* [1]. We have also measured an asymmetric DEA cross section by detecting Br^- ions. Observation of this effect represents evidence of chirally-sensitive molecular breakup.

[1] S. Mayer, C. Nolting, and J. Kessler, *J. Phys. B* **29**, 3497 (1996).

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