Abstract Submitted
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Use of the chiral smectic A liquid crystal electroclinic effect for sensitive measurement of enantiomeric excess[1] DUONG NGUYEN, LIOR ESHDAT, ARTHUR KLITTNICK, RENFAN SHAO, DAVID WALBA, NOEL CLARK, University of Colorado-Boulder — We present here a procedure which is capable of detecting an enantiomeric excess (ee) as low as 10^{-4}% using the electroclinic effect. The electroclinic effect is a field induced effect on the optic axis of the SmA phase of chiral molecules in which the tilt angle θ is linear with the electric field E. Thus, varying the voltage across a cell with planar alignment of a sample of unknown ee in SmA phase induces varying orientation of the director. This in turn induces varying intensity of a laser beam passing through the sample. The signal from the sensor detecting this beam is fed to a lock-in amplifier for low-noise measurement of the beam's intensity variation, from which we can extract even a small ee of the sample.

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