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## Exploitation of the Majority Rules Effect for the Accurate Measurement of High Enantiomeric Excess Values Using CD Spectroscopy

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**General Considerations.** Unless otherwise stated, all reactions were carried out under N<sub>2</sub>. Chemicals were of reagent grade and used as purchased without further purification. Dry THF and toluene were obtained from a Vacuum Atmospheres Solvent Purifier system. <sup>1</sup>H-NMR and <sup>13</sup>C-NMR spectra were recorded on *Varian* (MR 400) or *Bruker* (MR 400) instruments. Unless otherwise stated, <sup>1</sup>H-NMR and <sup>13</sup>C-NMR spectra were recorded in CDCl<sub>3</sub>;  $\delta$  in ppm rel. to TMS. Circular dichroism spectra were measured using a *Jasco* J-815 CD Spectrometer.

Synthesis of the Polymer and CD measurement. The crown ether substituted poly(phenylacetylene) was synthesized and CD titrations were carried out following established literature procedures. <sup>1</sup>H-NMR spectra matched the reported literature values.<sup>1</sup>

**Preparation of Alanine Solutions and Generation of the Calibration Curve.** First, stock solutions of D-Ala, L-Ala, and DL-Ala (all 4.56 mM) were prepared by adding 4.064 g of the corresponding alanine to a 50 mL volumetric flask and filling up with 1 N aqueous  $HClO_4$ . Stock solutions of alanine of ee's between 0.95 and 1.00 were then prepared by mixing x mL of the L-Ala stock solution and (1-x) mL of the DL-Ala stock solution (x=ee). The alanine solutions for measurement were then prepared by mixing 0.15 mL of the stock solutions.

Polymer solutions were prepared by dissolving 50 mg of the polymer in a 25 mL volumetric flask and filling to the line with MeCN.

For each sample, 0.5 mL of the polymer solution was placed in a vial. To this, 28.5  $\mu$ L of the corresponding alanine solution, and 0.471 mL of MeCN were added. CD and absorption spectra were taken after shaking the mixture.

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**Figure S1:** CD spectra of samples corresponding to the unknowns in Table 1 after addition of 1 equivalent of the opposite enantiomer, and in the presence of 1 mg/mL Yashima polymer in MeCN containing 2.8 vol % 1 M aq.  $HCIO_4$ . Total alanine concentration is 26 mM. The spectra were measured in a 0.1 cm cuvette a 25 °C.

1. R. Nonokawa and E. Yashima, J. Am. Chem. Soc., 2003, 125, 1278-1283.