Supplementary Information for

Switchable Chirality of Circularly Polarized Luminescence in Dilute Solution Based on the Solvent-dependent Helix Inversion of Poly(quinoxaline-2,3-diyl)s

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Contents

1 General

All reactions were carried out under an atmosphere of nitrogen with magnetic stirring. ^1H NMR spectra were recorded on a Varian 400-MR spectrometer at ambient temperature. ^1H NMR data are reported as follows: chemical shift in ppm downfield from tetramethylsilane (δ scale), multiplicity (s = singlet, d = doublet, t = triplet, q =

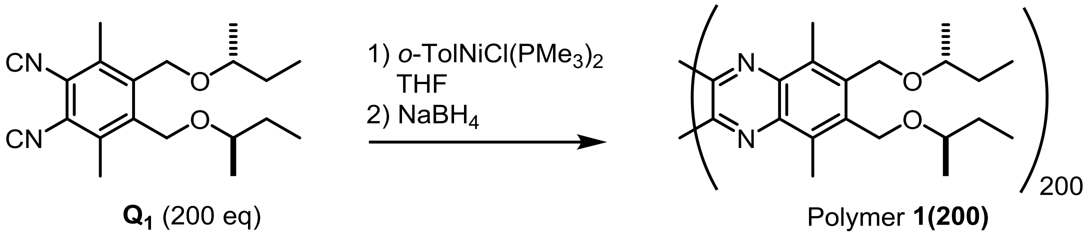
quartet, quint = quintet, sex = sextet, m = multiplet and br = broad), coupling constant (Hz), and integration. The GPC analysis was carried out with TSKgel G4000H$_{HR}$ or TSKgel GMH$_{XL}$ ($CHCl_3$, polystyrene standards). Preparative GPC was performed on JAI LC-908 equipped with JAIGEL-1H and -2H columns in a series ($CHCl_3$). UV spectra were recorded on a JASCO V-500 spectrometer equipped with a JASCO ETC-505T temperature/stirring controller at 20 °C. Circular dichroism (CD) spectra were recorded on a JASCO J-750 spectrometer equipped with a JASCO PTC-423L temperature/stirring controller at 20 °C. Fluorescence spectra were recorded on a JASCO FP-6300 spectrofluorometer. Absolute quantum yields were measured by a Hamamatsu absolute PL quantum yield spectrometer C11347. Circularly polarized luminescence (CPL) spectra were recorded on a JASCO CPL-200S at room temperature. Flash chromatography was performed using a Biotage Isolera One flash purification system with silica gel flash cartridges.

Tetrahydrofurane (THF) was dried and deoxygenized using an alumina/catalyst column system (Glass Contour Co.). *o*-TolNiCl(PMe_3)$_2$,[1] 1,2-bis((*R*)-sec-butoxymethyl)-4,5-diisocyano-3,6-dimethylbenzene **Q$_1$**,[2] 1,2-diisocyano-3,6-dimethyl-4,5-bis((*S*)-2-methylbutoxy)benzene **Q$_3$**,[3] **2(200)**,[4] 3,6-dimethyl-4,5-bis((*S*)-2-methylbutoxy)benzene-1,2-diamine,[3] were prepared according to the reported procedures. Other chemical reagents were purchased from the commercial sources and were used without further purification.

2 Experimental Procedures and Spectral Data for New Compounds

Synthesis of polymer 1(200): $\mathbf{Q_1}$ (48.6 mg, 148 µmol) was dissolved in THF (6 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (13.1 mM, 56.5 µL, 0.740 µmol) was added to the monomer solution with vigorous stirring. After 48 h, $LiBH_4$ (0.50 M, 283 µL, 142 µmol) was added to the reaction mixture and stirred for 2 h. 1N HCl aq (2 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic layer was collected by using ISOLUTE® Phase Separator (3 mL), and the solvent was evaporated. The residue was subjected to preparative GPC to give **1(200)** as a beige solid (41.1 mg, 84%). ^{1}H NMR ($CDCl_3$) δ 4.75 ($H_{1\text{-B}}$, 200×4H, br s), 3.40 ($H_{1\text{-C}}$, 200×2H, br s), 2.32 ($H_{1\text{-A}}$ and $H_{t\text{-B}}$, (200×6+3)H, br s), 1.85–1.38 ($H_{1\text{-D}}$, 200×2H, br m), 1.21 ($H_{1\text{-F}}$, 200×6H, br s), 0.87 ($H_{1\text{-E}}$, 200×6H, br s), small peaks originated from end-group were observed in 10.02 ($H_{t\text{-A}}$, 1H, s) and 7.85–7.67 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 6.93 \times 10^4$, $M_w/M_n = 1.11$.

Scheme S1. Synthesis of polymer **1(200)**



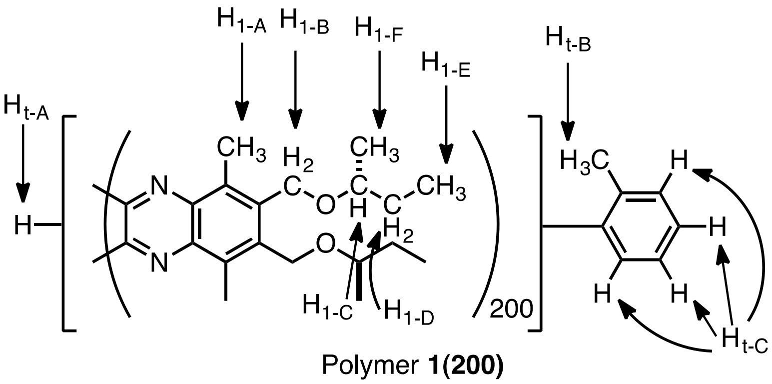


Figure S1. Structure of polymer **1(200)** with ^{1}H NMR assignment.

Synthesis of polymers 3(n):

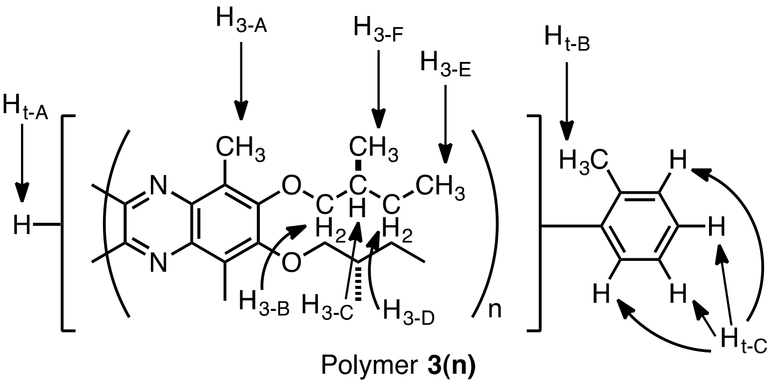
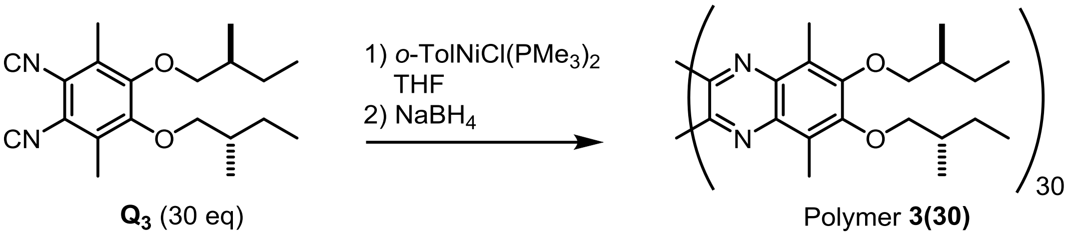


Figure S2. Structure of polymer **3(n)** with ^{1}H NMR assignment.

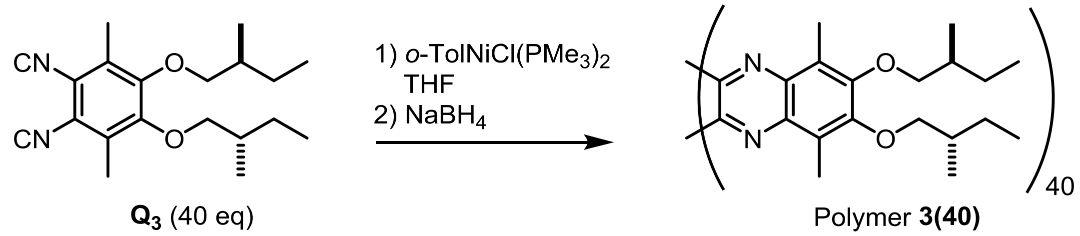
Synthesis of polymer 3(30): Q$_3$ (19.71 mg, 60.0 μmol) was dissolved in THF (2 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (8.96 mM, 223.3 μL, 2.00 μmol) was added to the monomer solution with vigorous stirring. After 120 h, $NaBH_4$ (15.9 mg, 420 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(30)** as a beige solid (18.4 mg, 94%). ^{1}H NMR ($CDCl_3$) δ 4.54–3.25 ($H_{3\text{-B}}$, 30×4H, br m), 2.15 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (30×6+3)H, br s), 1.83 ($H_{3\text{-C}}$, 30×2H, br s), 1.59–1.49 ($H_{3\text{-D}}$, 30×2H, br s), 1.27–1.09 ($H_{3\text{-D}}$, 30×2H, br m), 1.01 ($H_{3\text{-F}}$, 30×6H, d, J = 6.0 Hz), 0.91 ($H_{3\text{-E}}$, 30×6H, t, J = 6.8 Hz), small peaks originated from end-group were observed in 9.95 ($H_{t\text{-A}}$, 1H, s) and 7.83–7.10 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 6.81 \times 10^3$, $M_w/M_n = 1.13$.

Scheme S2. Synthesis of polymer **3(30)**



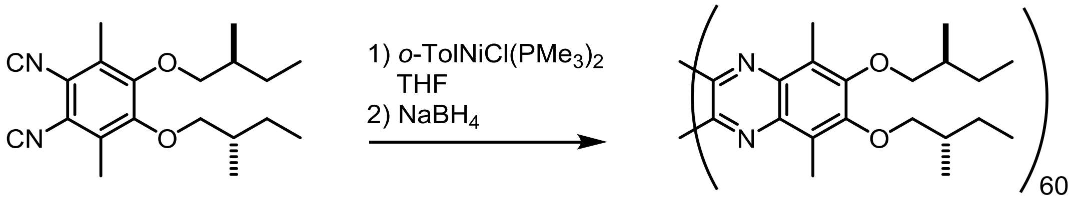
Synthesis of polymer 3(40): Q$_3$ (19.71 mg, 60.0 μmol) was dissolved in THF (2 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (8.96 mM, 167.5 μL, 1.50 μmol) was added to the monomer solution with vigorous stirring. After 120 h, $NaBH_4$ (15.9 mg, 420 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(40)** as a beige solid (17.1 mg, 87%). ^1H NMR ($CDCl_3$) δ 4.53–3.33 ($H_{3\text{-B}}$, 40×4H, br m), 2.16 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (40×6+3)H, br s), 1.83 ($H_{3\text{-C}}$, 40×2H, br s), 1.55 ($H_{1\text{-D}}$, 40×2H, br s), 1.29–1.08 ($H_{3\text{-D}}$, 40×2H, br m), 1.02 ($H_{3\text{-F}}$, 40×6H, d, J = 6.0 Hz), 0.91 ($H_{3\text{-E}}$, 40×6H, t, J = 6.8 Hz), small peaks originated from end-group were observed in 9.94 ($H_{t\text{-A}}$, 1H, s) and 7.84–7.10 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 9.55 \times 10^3$, $M_w/M_n = 1.12$.

Scheme S3. Synthesis of polymer **3(40)**



Synthesis of polymer 3(60): Q_3 (19.71 mg, 60.0 μmol) was dissolved in THF (2 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (8.96 mM, 111.7 μL, 1.00 μmol) was added to the monomer solution with vigorous stirring. After 120 h, $NaBH_4$ (7.94 mg, 210 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(60)** as a beige solid (18.3 mg, 93%). ^1H NMR ($CDCl_3$) δ 4.38–3.20 ($H_{3\text{-B}}$, 60×4H, br m), 3.59 ($H_{3\text{-B}}$, 60×2H, br s), 2.17 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (60×6+3)H, br s), 1.84 ($H_{3\text{-C}}$, 60×2H, br s), 1.56 ($H_{3\text{-D}}$, 60×2H, br s), 1.35–1.14 ($H_{3\text{-D}}$, 60×2H, br m), 1.02 ($H_{3\text{-F}}$, 60×6H, d, J = 6.0 Hz), 0.92 ($H_{3\text{-E}}$, 60×6H, t, J = 6.8 Hz), small peaks originated from end-group were observed in 9.94 ($H_{t\text{-A}}$, 1H, s) and 7.83–7.11 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 1.41 \times 10^4$, $M_w/M_n = 1.12$.

Scheme S4. Synthesis of polymer **3(60)**

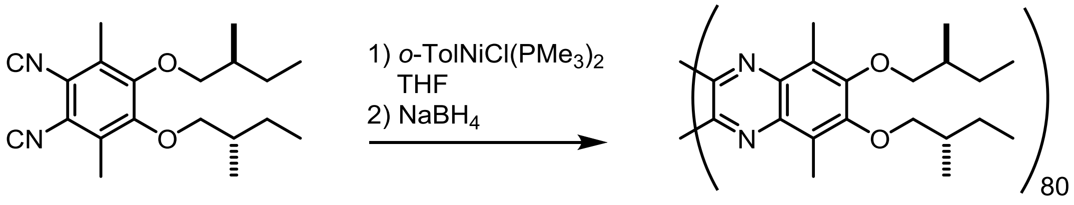


Q$_3$ (60 eq)

Polymer **3(60)**

Synthesis of polymer 3(80): Q$_3$ (29.56 mg, 90.0 μmol) was dissolved in THF (3 mL). A THF solution of *o*-TolNiCl(PMe$_3$)$_2$ (8.96 mM, 125.6 μL, 1.13 μmol) was added to the monomer solution with vigorous stirring. After 120 h, NaBH$_4$ (8.93 mg, 236 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH$_2$Cl$_2$ (20 ml). The organic extract was washed with brine (20 mL), dried over Na$_2$SO$_4$, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(80)** as a beige solid (28.3 mg, 96%). ^{1}H NMR (CDCl$_3$) δ 3.83 (H$_{3\text{-B}}$, 80×2H, br s), 3.59 (H$_{3\text{-B}}$, 80×2H, br s), 2.17 (H$_{3\text{-A}}$ and H$_{\text{t-B}}$, (80×6+3)H, br s), 1.84 (H$_{3\text{-C}}$, 80×2H, br s), 1.57 (H$_{3\text{-D}}$, 80×2H, br s), 1.32–1.13 (H$_{3\text{-D}}$, 80×2H, br m), 1.02 (H$_{3\text{-F}}$, 80×6H, d, J = 6.0 Hz), 0.92 (H$_{3\text{-E}}$, 80×6H, t, J = 7.2 Hz), small peaks originated from end-group were observed in 10.00 (H$_{\text{t-A}}$, 1H, s) and 7.82–7.11 ppm (H$_{\text{t-C}}$, 4H, m); GPC (CHCl$_3$, g/mol): $M_\text{n} = 2.36 \times 10^4$, $M_\text{w}/M_\text{n} = 1.09$.

Scheme S5. Synthesis of polymer **3(80)**

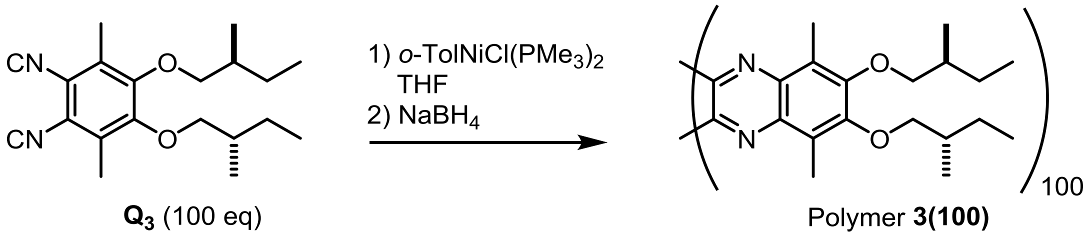


Q$_3$ (80 eq)

Polymer **3(80)**

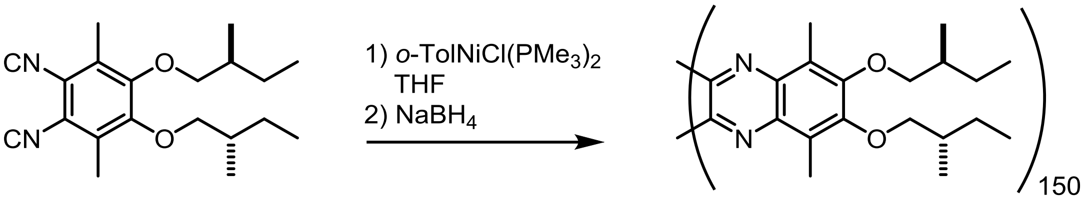
Synthesis of polymer 3(100): Q$_3$ (29.56 mg, 90.0 μmol) was dissolved in THF (3 mL). A THF solution of *o*-TolNiCl(PMe$_3$)$_2$ (8.96 mM, 100.5 μL, 0.90 μmol) was added to the monomer solution with vigorous stirring. After 120 h, NaBH$_4$ (7.15 mg, 189 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(100)** as a beige solid (24.5 mg, 83%). ^{1}H NMR ($CDCl_3$) δ 3.83 ($H_{3\text{-B}}$, 100×2H, br s), 3.59 ($H_{3\text{-B}}$, 100×2H, br s), 2.17 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (100×6+3)H, br s), 1.84 ($H_{3\text{-C}}$, 100×2H, br s), 1.57 ($H_{3\text{-D}}$, 100×2H, br s), 1.30–1.15 ($H_{3\text{-D}}$, 100×2H, br m), 1.02 ($H_{3\text{-F}}$, 100×6H, d, J = 5.6 Hz), 0.92 ($H_{3\text{-E}}$, 100×6H, t, J = 6.8 Hz), small peaks originated from end-group were observed in 10.06 ($H_{t\text{-A}}$, 1H, s) and 7.82–7.11 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 3.09 \times 10^4$, $M_w/M_n = 1.10$.

Scheme S6. Synthesis of polymer **3(100)**



Synthesis of polymer 3(150): Q$_3$ (29.56 mg, 90.0 μmol) was dissolved in THF (3 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (8.96 mM, 67.0 μL, 0.60 μmol) was added to the monomer solution with vigorous stirring. After 120 h, $NaBH_4$ (4.77 mg, 126 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(150)** as a beige solid (28.1 mg, 95%). ^{1}H NMR ($CDCl_3$) δ 3.83 ($H_{3\text{-B}}$, 150×2H, br s), 3.59 ($H_{3\text{-B}}$, 150×2H, br s), 2.17 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (150×6+3)H, br s), 1.84 ($H_{3\text{-C}}$, 150×2H, br s), 1.56 ($H_{3\text{-D}}$, 150×2H, br s), 1.22 ($H_{3\text{-D}}$, 150×2H, br s), 1.02 ($H_{3\text{-F}}$, 150×6H, br s), 0.92 ($H_{3\text{-E}}$, 150×6H, br s), small peaks originated from end-group were observed in 10.02 ($H_{t\text{-A}}$, 1H, s) and 7.82–7.11 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 5.26 \times 10^4$, $M_w/M_n = 1.08$.

Scheme S7. Synthesis of polymer **3(150)**



Q3 (150 eq) Polymer **3(150)**

Synthesis of polymer 3(200): Q₃ (29.56 mg, 90.0 μmol) was dissolved in THF (3 mL). A THF solution of *o*-TolNiCl(PMe_3)$_2$ (8.96 mM, 50.3 μL, 0.450 μmol) was added to the monomer solution with vigorous stirring. After 120 h, $NaBH_4$ (3.57 mg, 94.5 μmol) was added to the reaction mixture and stirred for 1 h. Water (20 mL) was added to the solution and extracted with CH_2Cl_2 (20 ml). The organic extract was washed with brine (20 mL), dried over Na_2SO_4, and the solvent was evaporated. The residue was subjected to preparative GPC to give **3(200)** as a beige solid (26.1 mg, 88%). ^{1}H NMR ($CDCl_3$) δ 3.83 ($H_{3\text{-B}}$, 200×2H, br s), 3.59 ($H_{3\text{-B}}$, 200×2H, br s), 2.16 ($H_{3\text{-A}}$ and $H_{t\text{-B}}$, (200×6+3)H, br s), 1.84 ($H_{3\text{-C}}$, 200×2H, br s), 1.56 ($H_{3\text{-D}}$, 200×2H, br s), 1.22 ($H_{3\text{-D}}$, 200×2H, br s), 1.02 ($H_{3\text{-F}}$, 200×6H, br s), 0.92 ($H_{3\text{-E}}$, 200×6H, br s), small peaks originated from end-group were observed in 10.06 ($H_{t\text{-A}}$, 1H, s) and 7.83–7.11 ppm ($H_{t\text{-C}}$, 4H, m); GPC ($CHCl_3$, g/mol): $M_n = 8.15 \times 10^4$, $M_w/M_n = 1.07$.

Scheme S8. Synthesis of polymer **3(200)**

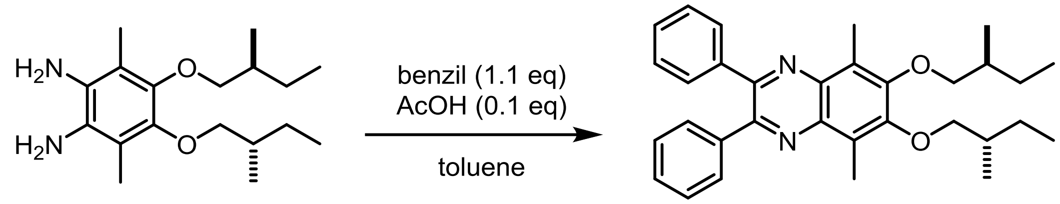
Q3 (200 eq) Polymer **3(200)**

Synthesis of monomeric model compound 4:

To a solution of 3,6-dimethyl-4,5-bis((*S*)-2-methylbutoxy)benzene-1,2-diamine (92.1 mg, 0.299 mmol) and acetic acid (1.7 μL, 29.9 μmol) in toluene was added benzil (69.1 mg, 0.329 mmol). The mixture was stirred at 120 °C for 41 h. The reaction mixture was concentrated under reduced pressure. The residue was purified with silica gel column chromatography (hexane/AcOEt = 95/5) to give **4** (121.3 mg, 84%) as orange solid. ^{1}H

NMR ($CDCl_3$) δ 7.58–7.56 (4H, m), 7.35–7.31 (6H, m), 3.95 (2H, dd, *J* = 6.0, 9.2 Hz), 3.83 (2H, dd, *J* = 6.4, 8.8 Hz), 2.73 (6H, s), 2.01−1.89 (2H, m), 1.73−1.63 (2H, m), 1.38−1.26 (2H, m), 1.12 (6H, d, *J* = 6.4 Hz), 1.00 (6H, t, *J* = 7.6 Hz); ^{13}C NMR ($CDCl_3$): δ 153.1, 150.0, 139.8, 138.6, 130.1, 128.3, 128.0, 126.0, 78.7, 36.0, 26.3, 16.7, 11.5, 10.0; IR(ATR) 2961, 1348, 1200, 1132, 698 cm^{-1}; HRMS(APCI) m/z calcd for $C_{32}H_{38}N_2O_2$ ($M+H^+$): 483.3006, Found: 483.2994; $[\alpha]_D^{24.1}$ +12.46 (c 1.33, $CHCl_3$).

Scheme S9. Synthesis of monomeric model compound **4**



3,6-dimethyl-4,5-bis((*S*)-2-methylbutoxy)benzene-1,2-diamine

Model **4**

3 Circularly Polarized Luminescence (CPL) Measurement of Polymers 1(200)−3(200) and Monomeric Model Compound 4

The CPL spectra were recorded at room temperature on a JASCO CPL-200 with an SQ-grade quartz cuvette (a path length of 10 mm). A scanning rate of 50 nm/min, an excitation bandwidth of 3000 μm, a monitoring bandwidth of 3000 μm, a response time of 8 seconds, and 20 times accumulation were employed. The CPL dissymmetry factor g_{lum} is defined as $g_{\mathrm{lum}} = 2(I_{\mathrm{L}} - I_{\mathrm{R}})/(I_{\mathrm{L}} + I_{\mathrm{R}})$, where I_{L} and I_{R} are the fluorescence intensities of the right- and left-handed circularly polarized light, respectively. The value of g_{lum} can be calculated on a JASCO CPL-200 as follows.

$$
\begin{aligned}
g_{\mathrm{lum}} &= [\text{PL ellipticity (mdeg)}] / [\text{PL intensity (V)}] / (1000 \times 180 / 4\pi) \\
&= [\text{PL ellipticity (mdeg)}] / [\text{PL intensity (V)}] \times (6.98 \times 10^{-5})
\end{aligned}
$$

The validity of the coefficient (6.98×10^{-5}) was also confirmed by the measurement of previously reported CPL materials[5] (europium(III) ions coordinated by chiral *N*,*N′*-bis(1-phenylethyl)-2,6-pyridinedicarboxamide in MeCN). For a curve fitting of observed CPL spectra, following equation was adopted on the basis of the supposition that the CPL signals are expressed as a linear combination of two Gaussian distribution functions of the wavenumber.

$$
I_{\mathrm{L}} - I_{\mathrm{R}} = [\mathrm{a}_1 \times \exp(\, \mathrm{b}_1 / (\lambda - \mathrm{c}_1)^2 \,)] + [\mathrm{a}_2 \times \exp(\, \mathrm{b}_2 / (\lambda - \mathrm{c}_2)^2 \,)]
$$

where λ is the wavelength (i.e. $1/\lambda$ is the wavenumber), a_1, a_2, b_1, b_2, c_1, and c_2 are variables for the curve fitting. Nonlinear least-squares fitting of $I_{\mathrm{L}} - I_{\mathrm{R}}$ versus λ was performed by using the Solver Function in Microsoft Office Excel 2013. Sums of the squares of the deviation were minimized by varying 6 parameters (a_1, a_2, b_1, b_2, c_1, and c_2).

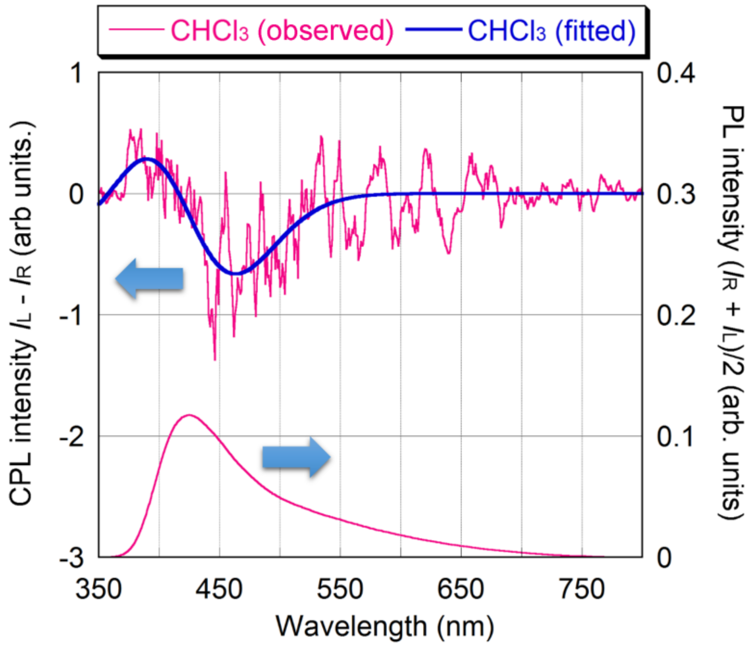


Figure S3. CPL and PL spectra of polymer **1(200)** in dilute (2.12 × 10^{-2} g/L) $CHCl_3$ solution (λ_{ex} = 300.0 nm).

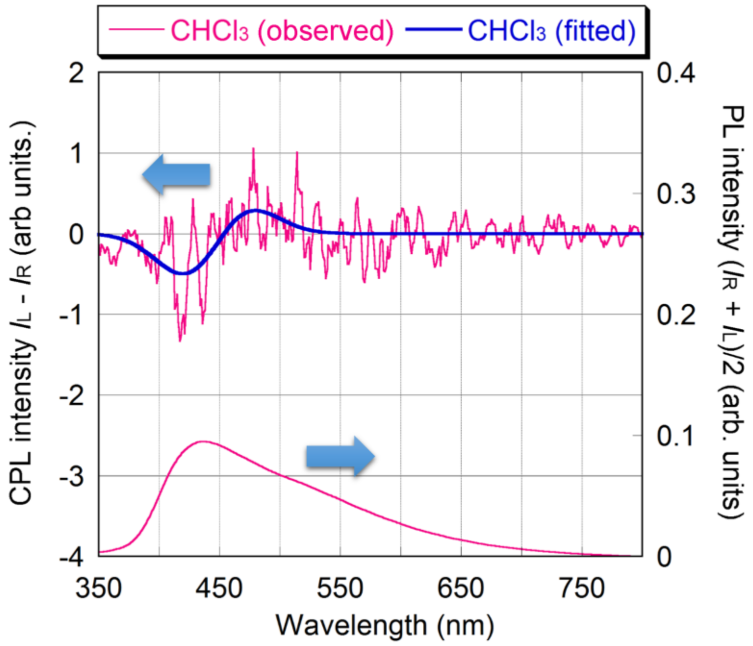


Figure S4. CPL and PL spectra of polymer **2(200)** in dilute (1.98 × 10^{-2} g/L) $CHCl_3$ solution (λ_{ex} = 300.0 nm).

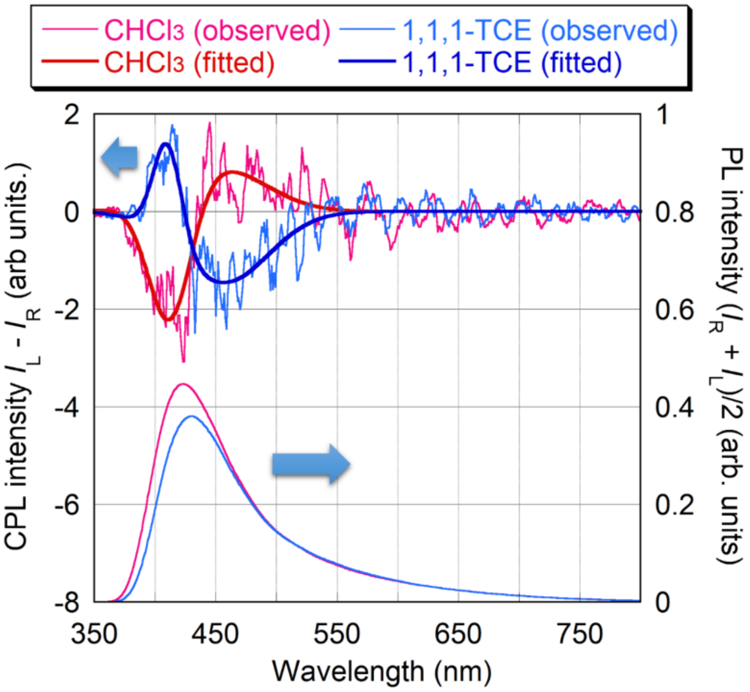


Figure S5. CPL and PL spectra of polymer **3(200)** in dilute (2.98 × 10^{-2} g/L) $CHCl_3$ and 1,1,1-TCE solutions (λ_{ex} = 300.0 nm).

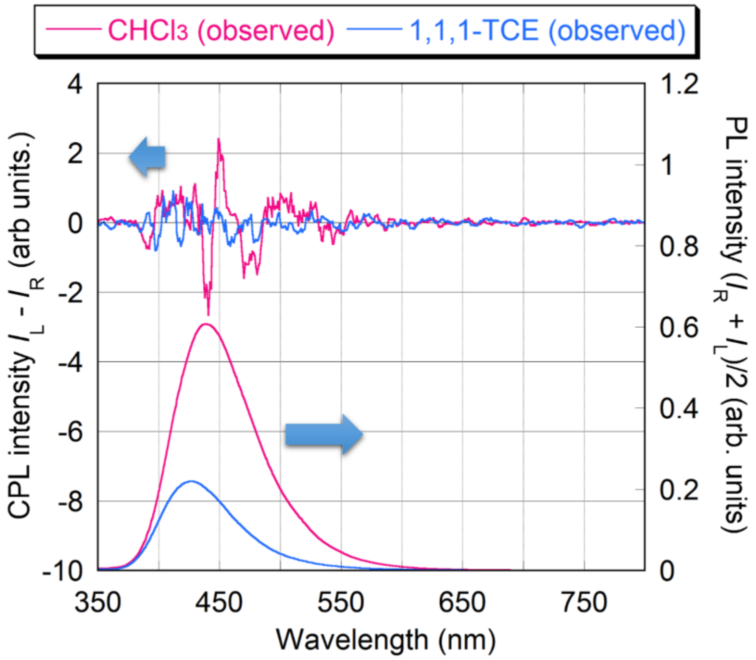


Figure S6. CPL and PL spectra of **4** in dilute (4.82 × 10^{-3} g/L) $CHCl_3$ and 1,1,1-TCE solutions (λ_{ex} = 300.0 nm).

4 Absolute Photoluminescence Quantum Yields of New Compounds

Table S1. Absolute photoluminescence (PL) quantum yields of compounds in $CHCl_3$ or 1,1,1-TCE.

Compound	Solvent	Concentration (g/L)	Excitation wavelength (nm)	PL quantum yield (%)
1(200)	$CHCl_3$	1.60×10^{-2}	350.0	0.3
1(200)	1,1,1-TCE	1.60×10^{-2}	350.0	0.3
2(200)	$CHCl_3$	2.36×10^{-2}	356.5	0.3
2(200)	1,1,1-TCE	2.36×10^{-2}	357.0	0.4
3(200)	$CHCl_3$	2.12×10^{-2}	356.5	0.7
3(200)	1,1,1-TCE	2.12×10^{-2}	359.5	0.8
4	$CHCl_3$	4.82×10^{-3}	362.0	3.3

5 Photograph of 1(200)-3(200) and 4 in dilute $CHCl_3$ and 1,1,1-TCE solutions

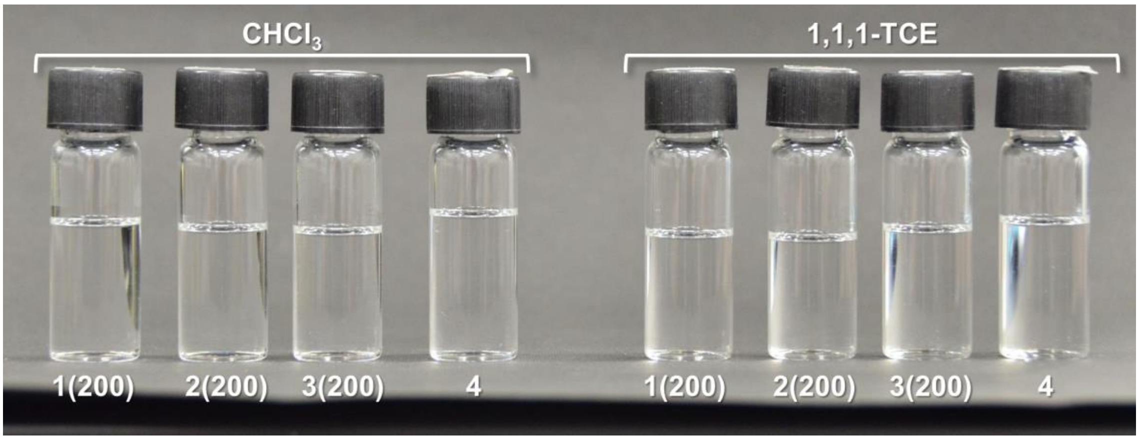


Figure S7. Photograph of **1(200)-3(200)** and **4** in $CHCl_3$ and 1,1,1-TCE (1.0×10^{-5} M) under ambient light.

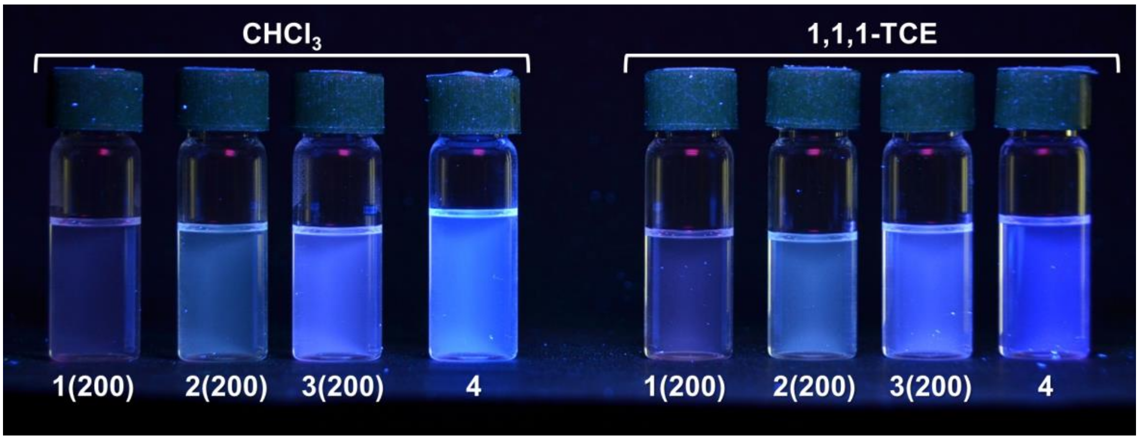


Figure S8. Photograph of **1(200)-3(200)** and **4** in $CHCl_3$ and 1,1,1-TCE (1.0×10^{-5} M) under UV light irradiation (λ_{ex} = 365 nm).

6 Effect of Concentration of Polymer 3(200) in $CHCl_3$ and 1,1,1-TCE Solutions

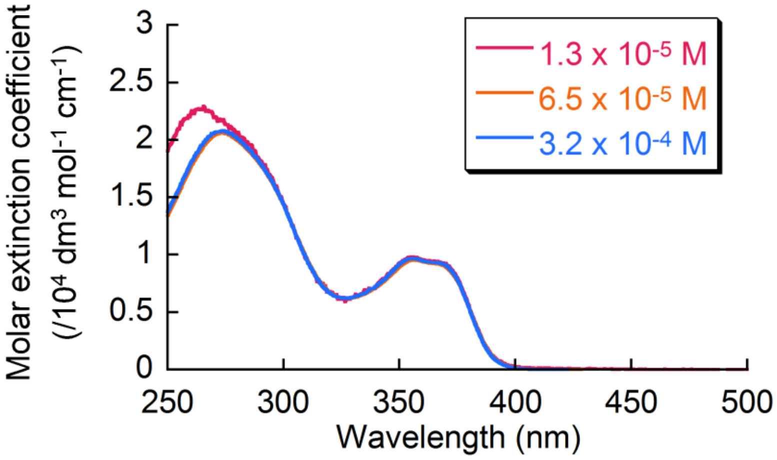


Figure S9. UV-absorption spectra of polymer **3(200)** at various concentrations (1.3 × 10^{-5}, 6.5 × 10^{-5}, and 3.2 × 10^{-4} M) in $CHCl_3$.

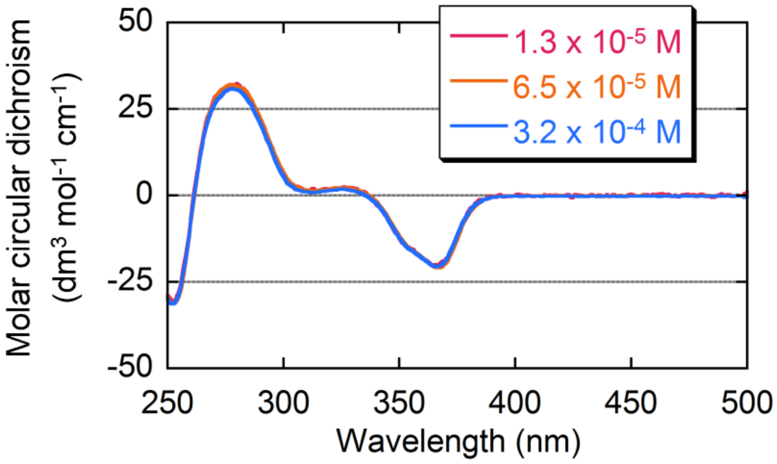


Figure S10. CD spectra of polymer **3(200)** at various concentrations (1.3 × 10^{-5}, 6.5 × 10^{-5}, and 3.2 × 10^{-4} M) in $CHCl_3$.

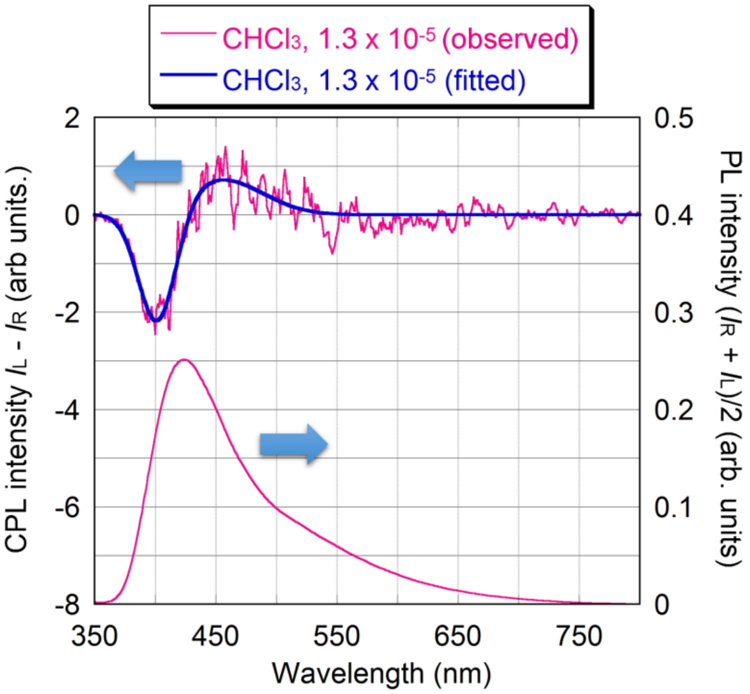


Figure S11. CPL and PL spectra of polymer **3(200)** in $CHCl_3$ (1.3×10^{-5} M, $\lambda_{ex} = 300.0$ nm).

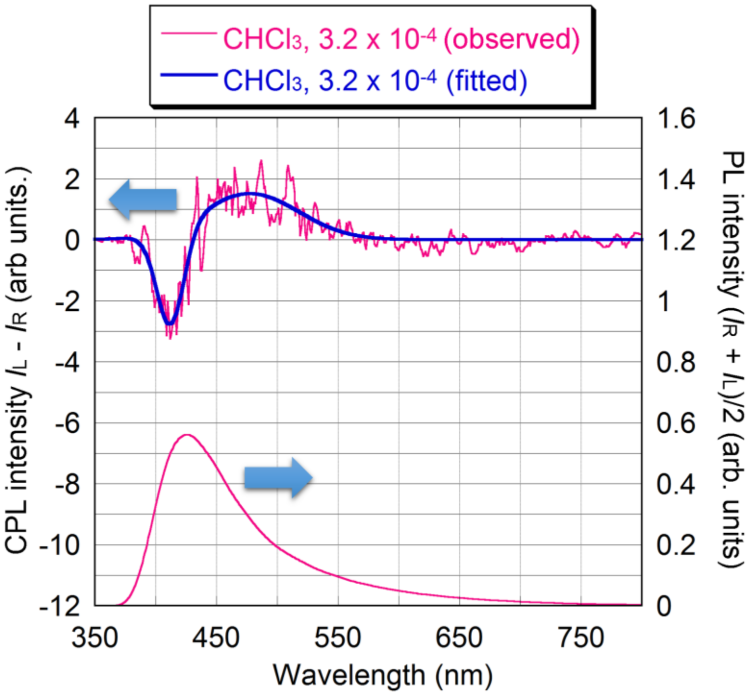


Figure S12. CPL and PL spectra of polymer **3(200)** in $CHCl_3$ (3.2×10^{-4} M, $\lambda_{ex} = 300.0$ nm).

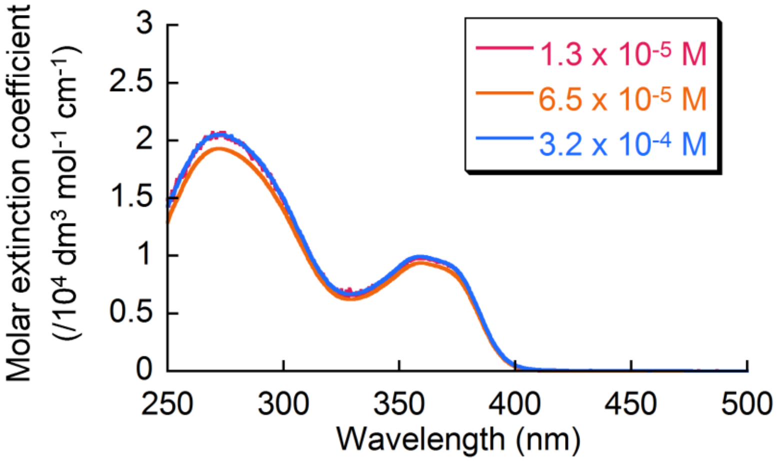


Figure S13. UV-absorption spectra of polymer **3(200)** at various concentrations (1.3 × 10^{-5}, 6.5 × 10^{-5}, and 3.2 × 10^{-4} M) in 1,1,1-TCE.

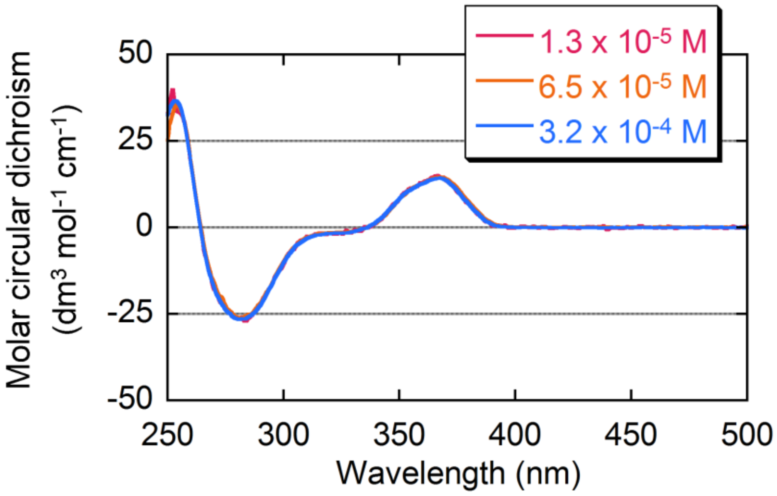


Figure S14. CD spectra of polymer **3(200)** at various concentrations (1.3 × 10^{-5}, 6.5 × 10^{-5}, and 3.2 × 10^{-4} M) in 1,1,1-TCE.

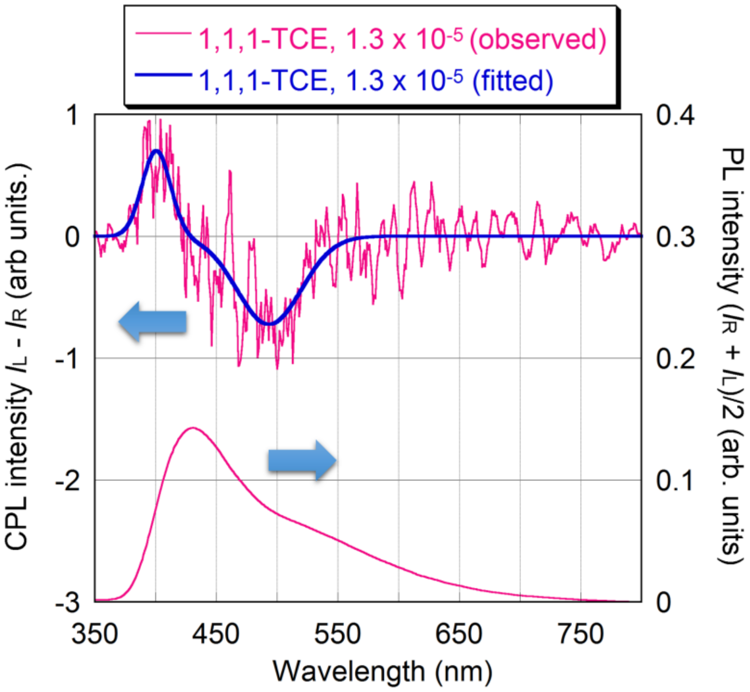


Figure S15. CPL and PL spectra of polymer **3(200)** in 1,1,1-TCE (1.3 × 10^{-5} M, λ_{ex} = 300.0 nm).

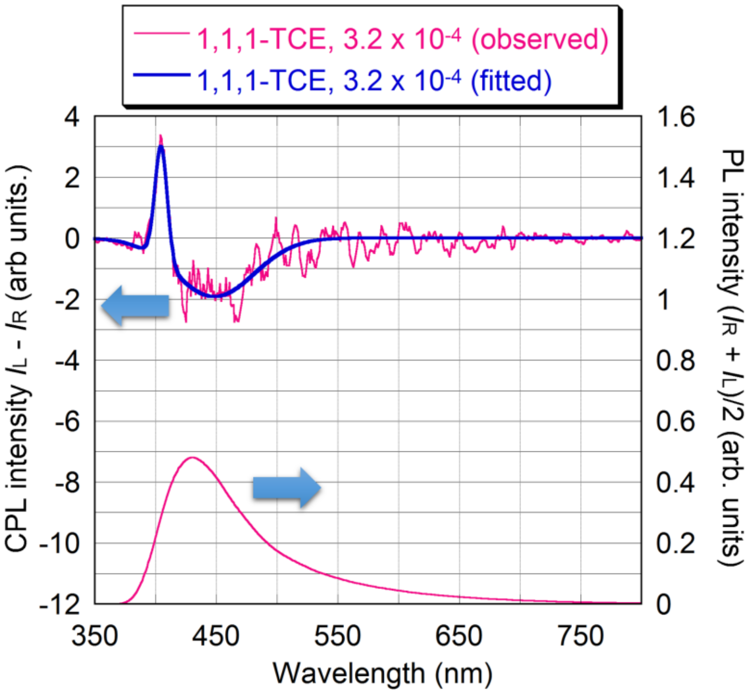


Figure S16. CPL and PL spectra of polymer **3(200)** in 1,1,1-TCE (3.2 × 10^{-4} M, λ_{ex} = 300.0 nm).

7 Optical Properties of Polymer 3(200) in Various Solvents

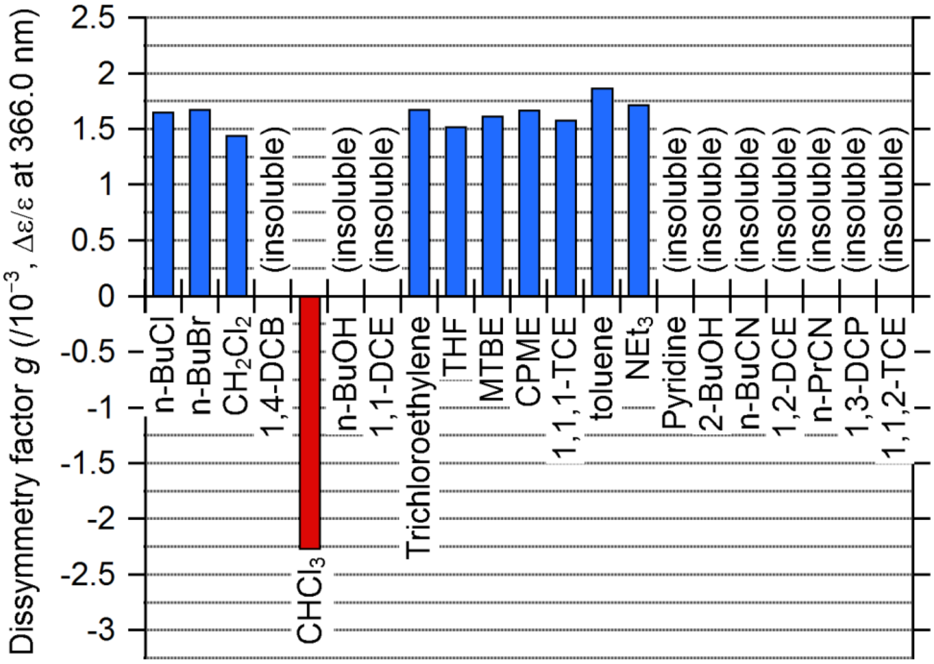


Figure S17. Dissymmetry factors g at 366.0 nm of polymer **3(200)** in various solvents. DCE: dichloroethane, DCP: dichloropropane, DCB: dichlorobutane, TCE: trichloroethane, MTBE: methyl *tert*-butyl ether, and CPME: cyclopentyl methyl ether.

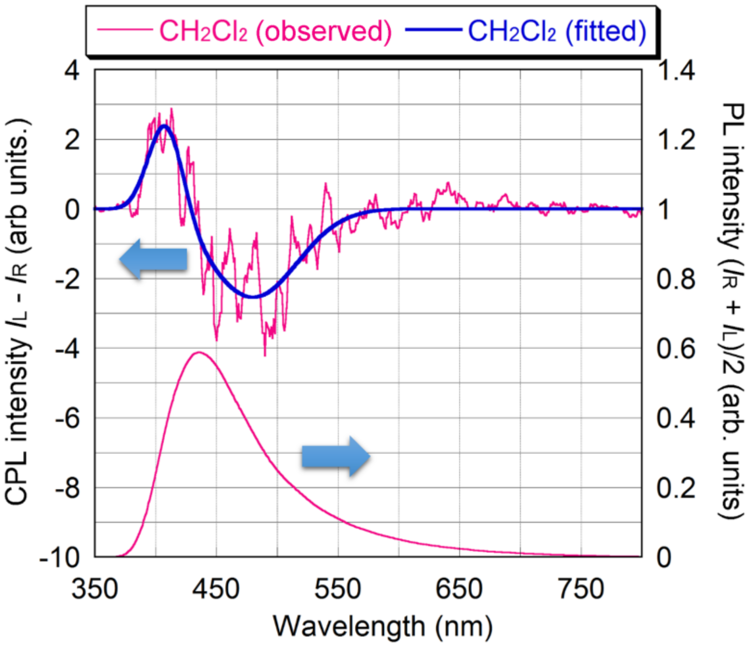


Figure S18. CPL and PL spectra of polymer **3(200)** in dilute (2.22×10^{-2} g/L) CH_2Cl_2 solution (λ_{ex} = 300.0 nm).

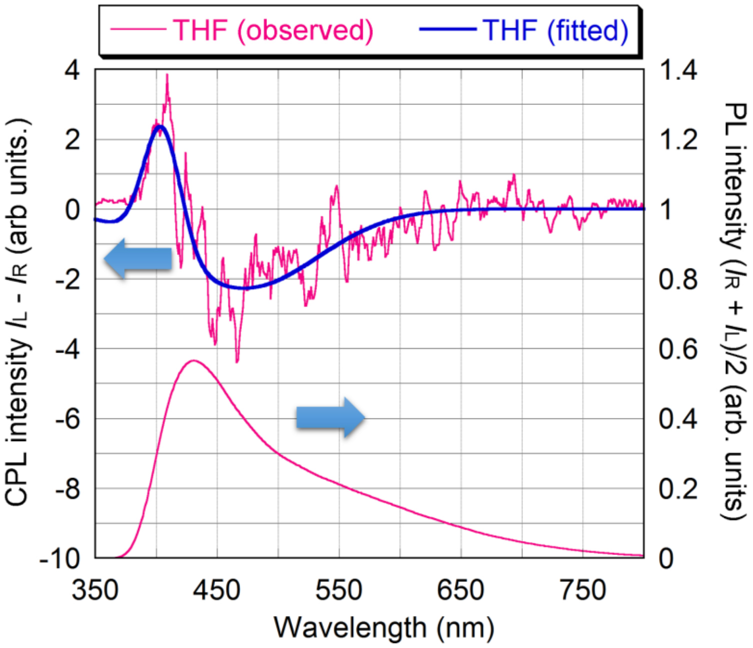


Figure S19. CPL and PL spectra of polymer **3(200)** in dilute (2.22×10^{-2} g/L) THF solution (λ_{ex} = 300.0 nm).

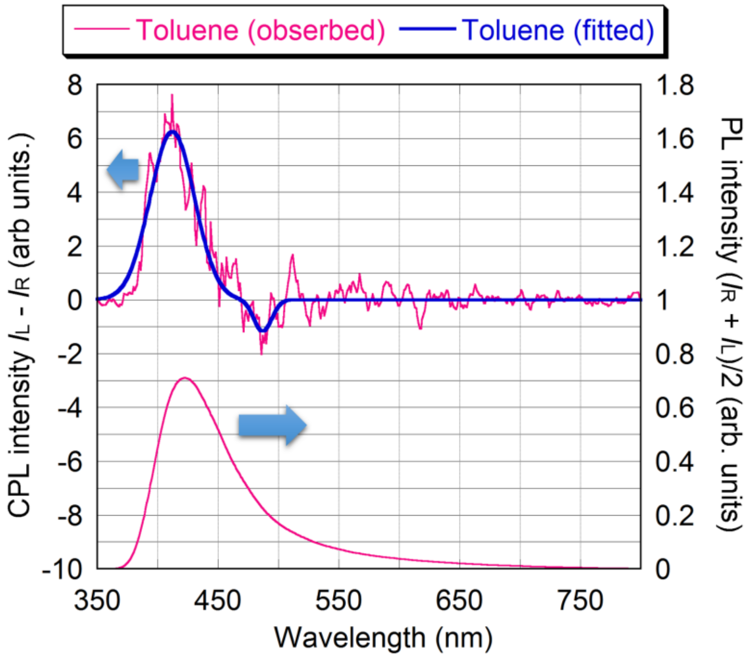


Figure S20. CPL and PL spectra of polymer **3(200)** in dilute (2.22 × 10^{-2} g/L) toluene solution (λ_{ex} = 300.0 nm).

8 References

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