Supporting information

Intercorrelation between Structural Ordering and Emission Properties in Photoconducting Polymers

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\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure.png}
\caption{DSC thermograms (heat flow $dH/dt$ as a function of temperature $T$) obtained during the first heating runs. Data are shifted along the y-axis for better visibility.}
\end{figure}

\begin{table}[h]
\centering
\begin{tabular}{lcc}
\hline
polymer & 1st $T$ [°C] & 2nd $T$ [°C] & 3rd $T$ [°C] \\
\hline
AnE-PVaa & 61 & 130 & 213 \\
AnE-PVad & 59 & 130 & 213 \\
AnE-PVac & 59 & 212 & 221 \\
AnE-PVab & 58 & 208 & 231 \\
AnE-PVac & 59 & 208 & 231 \\
AnE-PVba & 67 & & \\
AnE-PVbb & 53 & & \\
AnE-PVcc & 54 & 88 & 231 \\
\textsuperscript{stat} & 62 & & \\
\hline
\end{tabular}
\caption{Transitions temperatures determined from the peak maxima of the DSC thermograms.}
\end{table}
Figure S2: WAXS results obtained for the powder samples after different annealing steps.
Figure S2 (continuation): WAXS results obtained for the powder samples after different annealing steps. A sketch of the structure of the non-amorphous AnE-PV polymers is also included.
Scheme S1: Side chain and backbone unit length estimations assuming a fully stretched conformation.
Figure S3: WAXS results obtained for the filament samples. Left: two-dimensional detector pattern. Right: corresponding q cuts, $I_\parallel$ (blue) and $I_\perp$ (red), as well as the radial averaged intensity $I$ (black).
Figure S3 (continuation): WAXS results obtained for the filament samples. Left: two-dimensional detector pattern. Right: corresponding q cuts, $I_\parallel$ (blue) and $I_\perp$ (red), as well as the radial averaged intensity $I$ (black).
Figure S3 (continuation): WAXS results obtained for the filament samples. Left: two-dimensional detector pattern. Right: corresponding q cuts, $I_{\parallel}$ (blue) and $I_{\perp}$ (red), as well as the radial averaged intensity $I$ (black).
<table>
<thead>
<tr>
<th>T [°C]</th>
<th>AnE-PVaa</th>
<th>-ad</th>
<th>-ae</th>
<th>-ab</th>
<th>-ac</th>
<th>-cc</th>
<th>-stat</th>
<th>-ba</th>
<th>-bb</th>
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<td>1st</td>
<td>2nd</td>
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<td>1st</td>
<td>2nd</td>
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<td>RT</td>
<td>$q_{inter}^*$</td>
<td>3.27±0.02</td>
<td>3.26±0.02</td>
<td>3.22±0.02</td>
<td>3.71±0.02</td>
<td>4.02±0.02</td>
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<td>3.93±0.05</td>
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<td>$\Delta q_{inter}^*$</td>
<td>0.84±0.03</td>
<td>1.7±0.03</td>
<td>0.97±0.06</td>
<td>1.769±0.02</td>
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<td>$\xi_{inter}$</td>
<td>7.5±0.4</td>
<td>3.7±0.2</td>
<td>6.5±0.5</td>
<td>3.7±0.2</td>
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<td>100</td>
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<td>3.24±0.02</td>
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<td>3.58±0.02</td>
<td>3.79±0.02</td>
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<td>0.90±0.02</td>
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<td>1.05±0.03</td>
<td>0.38±0.03</td>
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<td>$\xi_{inter}$</td>
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<td>12.1±0.7</td>
<td>6.0±0.3</td>
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<td>13.1±0.8</td>
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<tr>
<td>RT</td>
<td>$q_{inter}^*$</td>
<td>3.44±0.02</td>
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<td>3.81±0.02</td>
<td>4.07±0.02</td>
<td>3.81±0.02</td>
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<td>$\Delta q_{inter}^*$</td>
<td>0.19±0.02</td>
<td>0.48±0.02</td>
<td>0.27±0.02</td>
<td>0.60±0.02</td>
<td>0.37±0.02</td>
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<td>$\xi_{inter}$</td>
<td>33±4</td>
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<td>24±2</td>
<td>10.6±0.6</td>
<td>17±1</td>
<td>9.7±0.5</td>
<td>25±2</td>
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</table>

Table S2: WAXS results obtained for the powder samples at different steps of the annealing procedure: Bragg peak positions $q_{inter}^*$, peak widths $\Delta q_{inter}^*$ and correlation lengths $\xi_{inter}$ corresponding to interlayer lattice planes $d_{inter}$ listed in Table 2. RT denotes room temperature. q values are given in [nm$^{-1}$] and lengths in [nm].
Table S3: WAXS results obtained for the filament samples from $I_{\perp}$ and $I_{\|}$: Bragg peak positions $q_{j}^*$, peak widths $\Delta q_{j}^*$, and correlation lengths $\xi_{j}$ corresponding to lattice planes $d_{j}$ with $j=\text{inter, } \pi-\pi$, and $\perp \|_{o,i}$ ($i=1, 2, 3$) listed in Table 3 and 4. q values are given in [nm$^{-1}$] and lengths in [nm].