Structure properties relationships of liquid crystal bent core organic semiconductors based on benzo[2,1-b:3,4-b']dithiophene-4,5-dione

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Figure S1: TGA curves and degradation temperatures of LC-diketones 1 and 2 in nitrogen with a heating rate of 20°C/min

Figure S2: DSC scan of LC-diketones 1 (top) and 2 (bottom) at a scanning rates of 5°C/min and 10°C/min.

Figure S3: Optical polarizing microscopy of LC-diketone 1. (top) N phase at \( T = 137 \, ^\circ\mathrm{C} \), between crossed polarizers, magnification 10x, on cooling from the isotropic state (down) N phase at \( T = 130 \, ^\circ\mathrm{C} \), between crossed polarizers, magnification 10x, on cooling from the isotropic state.

Figure S4: Optical microscopy images of a LC-diketone 2 based thin film deposited by vacuum evaporation in: (a) BGBG configuration with interdigitated source and drain electrodes and (b) BGTC configuration with linear source and drain electrodes. Optical microscopy images were realized after an annealing at 90°C during 90 min as post-treatment.

Figure S5: AFM picture and corresponding cross-section of LC-diketones 1 (top) and 2 (down) based thin film deposited by vacuum evaporation on Si/SiO\(_2\) substrate without annealing as post-treatment.

Figure S6: Optical microscopy images of thin films deposited by drop casting in BGBG configuration with linear source and drain electrodes from solutions of LC-diketone 2: (a) in dichloromethane (C = 4.17 mg/mL) and (b) in chlorobenzene (C = 8.35 mg/mL). Optical microscopy images were realized after an annealing at 110°C during 3 h as post-treatment.

Figure S7: \(^1\)H NMR of LC-Diketones 1 (top) and 2 (down).
Table: Main degradation temperatures determined by TGA under nitrogen (inflexion points on weight-change curve)

<table>
<thead>
<tr>
<th>LC-diketone 1</th>
<th>LC-diketone 2</th>
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<tbody>
<tr>
<td>317 °C</td>
<td>360 °C</td>
</tr>
<tr>
<td>372 °C</td>
<td>440 °C</td>
</tr>
<tr>
<td>460 °C</td>
<td>470 °C</td>
</tr>
</tbody>
</table>

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LC-diketone 1

5 °C/min

10 °C/min
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