Supporting Information for

High-performance blue fluorescent/electroactive polyamide bearing p-phenylenediamine and asymmetrical SBF/TPA-based units for electrochromic and electrofluorochromic multifunctional applications

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**Table S1.** Molecular Weights and Solubilities of SBF-HPA and SBF-DPA.

<table>
<thead>
<tr>
<th>Sample</th>
<th>$M_w$</th>
<th>$M_n$</th>
<th>PDI</th>
<th>NMP</th>
<th>DMA</th>
<th>DMF</th>
<th>DMSO</th>
<th>THF</th>
<th>CHCl$_3$</th>
<th>CH$_3$CN</th>
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</thead>
<tbody>
<tr>
<td>SBF-HPA</td>
<td>9530</td>
<td>9200</td>
<td>1.04</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>--</td>
</tr>
<tr>
<td>SBF-DPA</td>
<td>5560</td>
<td>4020</td>
<td>1.38</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>--</td>
</tr>
</tbody>
</table>

$^a$ Relative to polystyrene standard, using DMF as the eluent. $^b$ Qualitative solubilities were tested with 10 mg of polymers in 1mL of solvent. ++, soluble at room temperature; +, partially soluble; --, insoluble even on heating.

**Table S2.** Thermal properties of SBF-HPA and SBF-DPA.

<table>
<thead>
<tr>
<th>Sample</th>
<th>$T_g$ (°C)$^a$</th>
<th>$T_{d5%}$ (°C)$^b$</th>
<th>$T_{d10%}$ (°C)$^b$</th>
<th>Char yield (wt %)$^c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBF-HPA</td>
<td>254</td>
<td>427</td>
<td>458</td>
<td>71</td>
</tr>
<tr>
<td>SBF-DPA</td>
<td>270</td>
<td>433</td>
<td>507</td>
<td>72</td>
</tr>
</tbody>
</table>

$^a$ Obtained at the baseline shift in the second heating DSC traces, with a heating rate of 10 °C/min under N$_2$.

$^b$ Decomposition temperature at which a 5 or 10% weight loss was recorded via TGA at a heating rate of 10 °C/min.

$^c$ Residual weight percentage at 800 °C in N$_2$. 