Supporting Information for:

Nanofibers generated from linear carbazole-based organogelators for
the detection of explosives

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### Table S1. Photophysical and electrochemical data of C3 and C5.

<table>
<thead>
<tr>
<th>Compounds</th>
<th>Solutions&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Nanofiber films</th>
<th>E&lt;sub&gt;onset&lt;/sub&gt;&lt;sup&gt;ox&lt;/sup&gt; (eV)&lt;sup&gt;b&lt;/sup&gt;</th>
<th>HOMO (eV)&lt;sup&gt;d&lt;/sup&gt;</th>
<th>LUMO (eV)&lt;sup&gt;e&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC3T</td>
<td>λ&lt;sub&gt;abs max&lt;/sub&gt; (nm): 258, 330, 376 λ&lt;sub&gt;em max&lt;/sub&gt; (nm): 427, 449 Φ&lt;sub&gt;F&lt;/sub&gt;&lt;sup&gt;b&lt;/sup&gt; 0.380</td>
<td>λ&lt;sub&gt;abs max&lt;/sub&gt; (nm): 339, 385, 413 λ&lt;sub&gt;em max&lt;/sub&gt; (nm): 456, 483</td>
<td>0.35</td>
<td>-4.83</td>
<td>-1.93</td>
</tr>
<tr>
<td>PC3P</td>
<td>λ&lt;sub&gt;abs max&lt;/sub&gt; (nm): 267, 332, 371 λ&lt;sub&gt;em max&lt;/sub&gt; (nm): 488 Φ&lt;sub&gt;F&lt;/sub&gt; 0.256</td>
<td>λ&lt;sub&gt;abs max&lt;/sub&gt; (nm): 274, 333, 383 λ&lt;sub&gt;em max&lt;/sub&gt; (nm): 479</td>
<td>0.26</td>
<td>-4.74</td>
<td>-1.86</td>
</tr>
</tbody>
</table>

<sup>a</sup>In CH<sub>2</sub>Cl<sub>2</sub> (1µM).

<sup>b</sup>Using quinine sulfate in 0.1 H<sub>2</sub>SO<sub>4</sub> (Φ<sub>F</sub> = 0.546) as the standard.

<sup>c</sup>Using E<sub>onset</sub><sup>ox</sup> is the onset oxidation potential.

<sup>d</sup>Using HOMO = -(E<sub>onset</sub><sup>ox</sup> + 4.48) eV.

<sup>e</sup>LUMO=HOMO−E<sub>g</sub>, Eg is determined from the onset of the absorption at the lower energy band edge.

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**Figure S1** (a) Normalized concentration-dependent fluorescence emission spectra of PC3P in CH<sub>2</sub>Cl<sub>2</sub> (λ<sub>ex</sub> = 376 nm) and (b) The plot of the absorbance at 326 nm versus the concentration of PC3P in CH<sub>2</sub>Cl<sub>2</sub>.

**Figure S2** Normalized fluorescence emission spectra of TC3T (a) and PC3P (b) in different solvents (1.0 × 10<sup>-6</sup> M), λ<sub>ex</sub> = 376 nm.
Figure S3 Cyclic voltammetry diagram of compound \textbf{TC3T} in anhydrous CH$_2$Cl$_2$ with 0.1M Bu$_4$NBF$_4$ as electrolyte at a scan rate of 100 mV·s$^{-1}$.

Figure S4 Cyclic voltammetry diagram of compound \textbf{PC3P} in anhydrous CH$_2$Cl$_2$ with 0.1M Bu$_4$NBF$_4$ as electrolyte at a scan rate of 100 mV·s$^{-1}$. 
**Figure S5** Normalized UV-vis absorbance spectra (a) and Normalized fluorescent emission spectra (b) of TC3T in CH$_2$Cl$_2$ (black) (1.0 × 10$^{-6}$ M) and in nanofibers-based films (red).

**Figure S6** Normalized UV-vis absorbance spectra (a) and Normalized fluorescent emission spectra (b) of PC3P in CH$_2$Cl$_2$ (black) (1.0 × 10$^{-6}$ M) and in nanofibers-based films (red).
Figure S7 X-ray diffraction pattern of the xerogel PC3P obtained from n-Hexane.

Figure S8 The plot of the absorbance at 326 nm versus the concentration of PC3P in toluene.
Figure S9 The changes of fluorescent emission spectra of TC3T upon addition different amount of TNT (a), DNT (b) and PC3P upon addition different amount of TNT (c), DNT (d), respectively, in toluene (1.0 × 10^{-6} M, λ_{ex} = 330 nm).

Figure S10 Time-dependent fluorescent emission spectra of nanofibers-based film of TC3T (λ_{ex} = 306 nm) upon exposed to the vapors of (a) TNT and (b) DNT. The inset was the fluorescence quenching efficiency against time.
Figure S11 $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound 3.

Figure S12 MALDI/TOF MS spectrum of compound 3.
**Figure S13** $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound 4.

**Figure S14** MALDI/TOF MS spectrum of compound 4.
Figure S15 $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound TC3T.

Figure S16 $^{13}$C NMR (125 MHz, CDCl$_3$) spectrum of compound TC3T.
Figure S17 MALDI/TOF MS spectrum of compound TC3T.

Figure S18 $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound 6.
**Figure S19** MALDI/TOF MS spectrum of compound 6.

**Figure S20** $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound 7.
Figure S21 MALDI/TOF MS spectrum of compound 7.

Figure S22 $^1$H NMR (400 MHz, CDCl$_3$) spectrum of compound PC3P.
Figure S23 $^{13}$C NMR (125 MHz, CDCl$_3$) spectrum of compound PC3P.

Figure S24 MALDI/TOF MS spectrum of compound PC3P.
Figure S25 The fluorescence quenching and recovery of PC3P in the nanofibers-based film exposed to the saturated vapors of TNT (0.0084 Pa, a) and DNT (0.303 Pa, b) at 40 °C for 30 min, respectively, followed by blown by dryer for 4 min. The fluorescence intensity at 479 nm was normalized to the initial value before exposed to the saturated vapor of explosives.

Figure S26 FT-IR spectrum of compound 3.
Figure S27 FT-IR spectrum of compound 4.

Figure S28 FT-IR spectrum of compound TC3T.
Figure S29 FT-IR spectrum of compound 6.

Figure S30 FT-IR spectrum of compound 7.
Figure S31 FT-IR spectrum of compound PC3P.

Figure S32 FT-IR spectrum of TC3T in xerogel obtained from cyclohexane.