Electronic Supplementary Information

One-pot Synthesis of Carbon Nanodots@Zeolitic Imidazolate Framework-8 Composite for Enhanced Cu$^{2+}$ Sensing

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Figure S1 Coordination mode for the H-MeIM ligand in ZIF-8.

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Figure S2 FT-IR spectra of CDs, ZIF-8 and CDs@ZIF-8.

Figure S3 SEM images of ZIF-8 and CDs@ZIF-8.
**Figure S4** TGA curve of CDs@ZIF-8

**Figure S5** UV-vis absorption spectra of the CDs(blank), ZIF-8(pink) and CDs@ZIF-8(blue).
**Figure S6** (A) XRD patterns of CDs@ZIF-8 of as-synthesized (black line) and after treatment in H₂O at 373 K (red line) for 24 h. The FL intensities of CDs@ZIF-8 at different pH (B), in different concentrations of NaCl (C) of different storage days (D).

**Figure S7** Fluorescent intensities of CDs@ZIF-8 in different organic solvents.
Figure S8 Fluorescent intensities of CDs in the presence of different metal ions.

Figure S9 The dependence of FL response of CDs@ZIF-8 on reaction time.
Figure S10 Cu$^{2+}$ solution before (A) and after (B) adding CDs@ZIF-8. (C) Fluorescence spectra of the CDs@ZIF-8 before (black) and after (red) adding Cu$^{2+}$ solution, the inset shows the photographs of CDs@ZIF-8 dispersion in the absence (left) and presence (right) of Cu$^{2+}$ under UV light. (D) The XRD patterns of the CDs@ZIF-8 before and after treatment of Cu$^{2+}$. (E) UV-vis absorption spectra of CDs@ZIF-8 and CDs@ZIF-8+Cu$^{2+}$.

Table S1 Cu$^{2+}$ amount of the solution by ICP before and after CDs@ZIF-8 treated with Cu$^{2+}$ for 2 h.

<table>
<thead>
<tr>
<th>Immersion time in Cu$^{2+}$ aqueous solution</th>
<th>Cu$^{2+}$ ion amount in filtrate after Cu$^{2+}$ exchanging</th>
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<tbody>
<tr>
<td>0 h</td>
<td>1 μM</td>
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<tr>
<td>2 h</td>
<td>1.52nM</td>
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