Supporting Information

Discriminating between Different Heavy Metal Ions with Fullerene-Derived Nanoparticles

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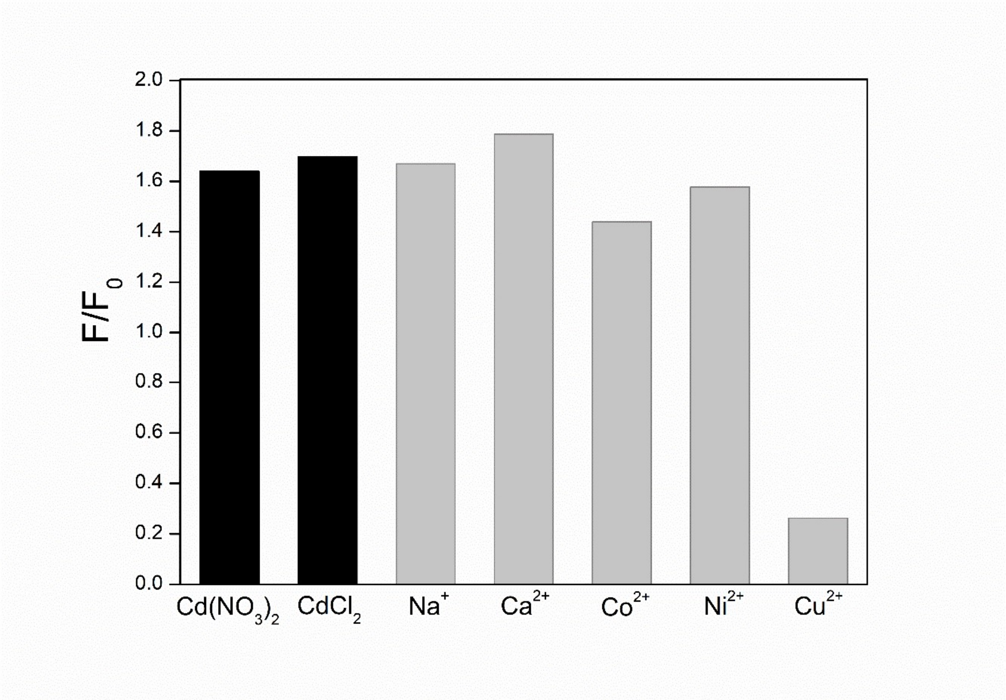
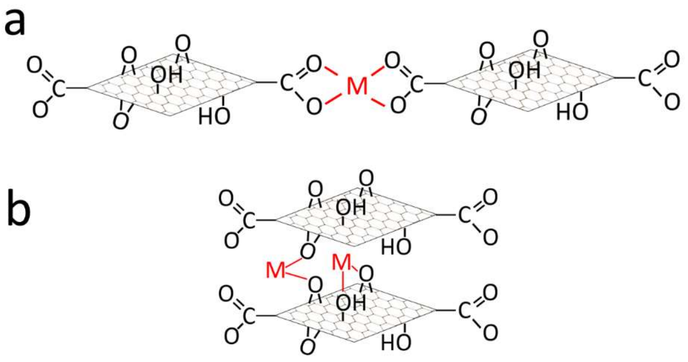
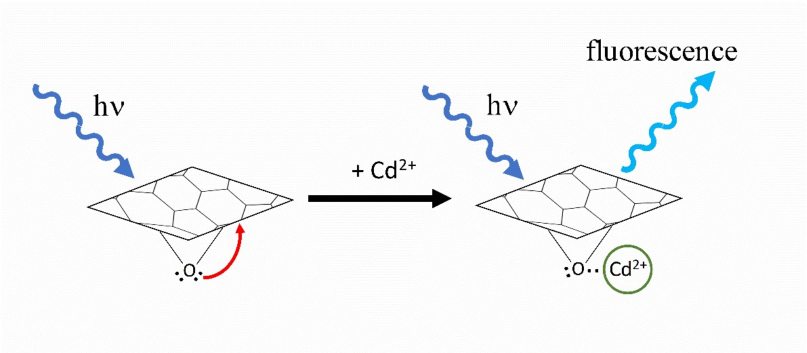


Figure S1. Fluorescence quenching ratio of UFQD reference solution in the presence of various metal ions: (black bars) in the presence of different salts of cadmium with a concentration of 100 μM of Cd^{2+}; (grey bars) in the presence of various metal ions at 100 μM, followed by 100 μM of Cd^{2+}.



Scheme S1. Possible mechanisms of aggregation: (**a**) edge-to-edge through chelating carboxyl groups; (**b**) face-to-face staking through either weak alkoxide or dative bonds from carbonyl and hydroxyl groups.



Scheme S2. Schematic of the chelation enhanced fluorescence (CHEF) process due to the chelation of a Cd^{2+} ion which immobilizes the oxygen electron lone pair.

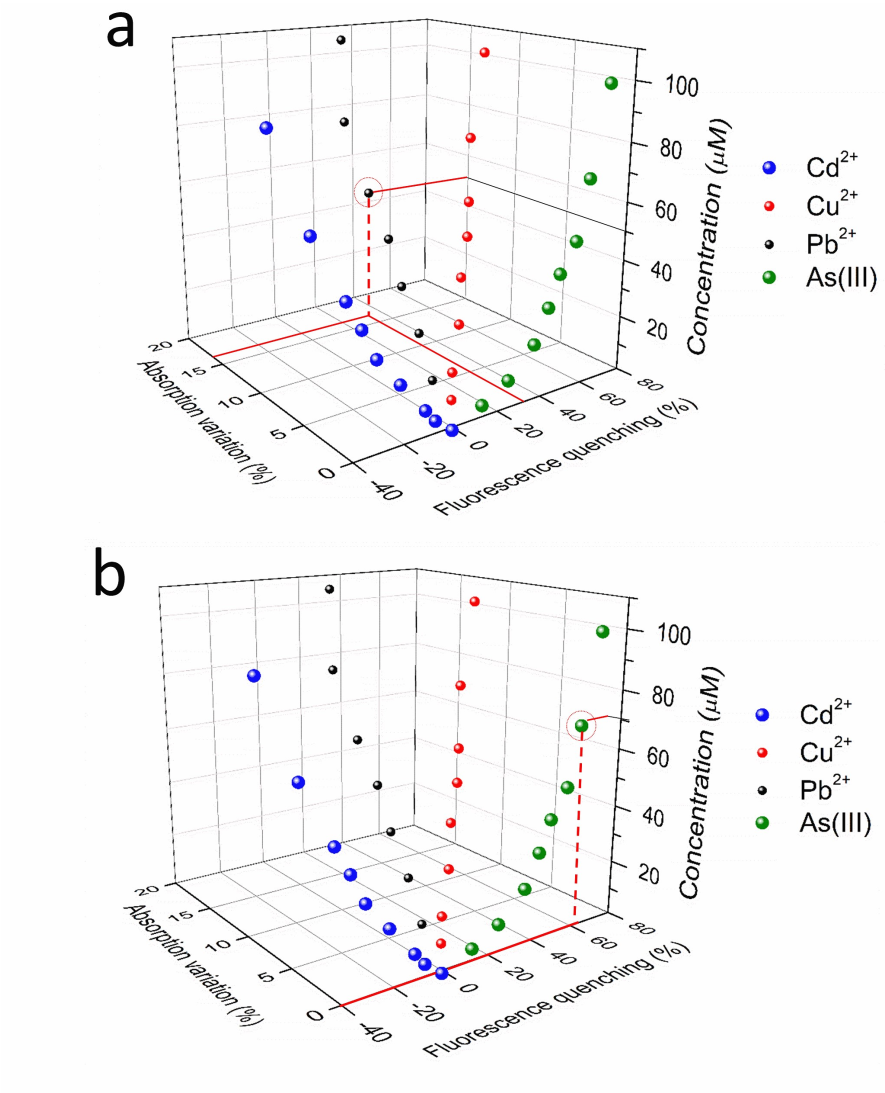


Figure S2. Two examples of applications of the three-dimensional calibration diagram. In (**a**) a fluorescence quenching by 33% and an increase of absorbance by 16% (marked by the red solid lines) uniquely correspond to 50 μM of Pb^{2+}; in (**b**) a 62% variation of fluorescence intensity with no variation of absorbance uniquely correspond to 70 μM of As(III).