Title: Functionalized layered double hydroxide with nitrogen and sulfur co-decorated carbondots for highly selective and efficient removal of soft Hg^{2+} and Ag^{+} ions

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Functionalized layered double hydroxide with nitrogen and sulfur co-decorated carbondots for highly selective and efficient removal of soft Hg^{2+} and Ag^{+} ions

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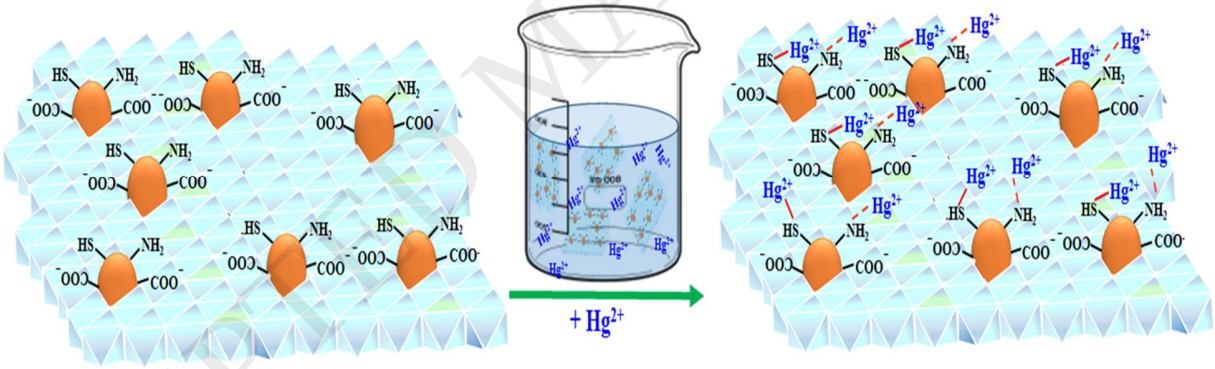
Graphical abstract



Highlights

- Nitrogen and sulfur co-doped carbon dots/layered double hydroxide was synthesized.
- Sorbent displayed a selectivity order of Ag^{+}> Hg^{2+}>>Cu^{2+}>>>Pb^{2+} > Zn^{2+} > Cd^{2+}.
- The adsorption was exceptionally rapid, showing ~100% within 80 min for Hg^{2+}.
- The adsorption isotherms were well described using Langmuir isotherm.
- The enormous q_m for Hg^{2+} (625.0 mg g^{-1}) and Ag^{+} (714.3 mg g^{-1}) were observed.