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## Facile Synthesis of Mesoporous Magnetic AMP Polyhedric Composites for Rapid and Highly Efficient Separation of Cs<sup>+</sup> from Water

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### ABSTRACT

Mesoporous magnetic AMP polyhedric composites mag-AMP (AMP/Fe<sub>3</sub>O<sub>4</sub>) with highly efficient Cs<sup>+</sup> adsorption capacity has been successfully explored by means of a simple interface-induced co-assembly method at room temperature for the first time. Taking advantage of the mesoporous material and magnetic composite, mag-AMP composites show efficient Cs<sup>+</sup> adsorption capability (maximum adsorption capacity, 83.33 mg/g) and reach an equilibrium state within only 5 min. The Langmuir isotherm model fitted better with the adsorption data than Freundlich isotherm model. The fast adsorption process follows pseudo-second-order kinetics. The obtained adsorbent also shows high Cs<sup>+</sup>-sieving selectivity and could be applied in kinds of solutions even in the strong acidic medium. It could also be used effectively to separate Cs<sup>+</sup> from wastewater

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