



Contribution ID: 66

Type: **Poster Presentation**

Sustainable Synthesis of adaptable MOFs Using PET Waste for Efficient Phosphate Removal

Monday, May 20, 2024 7:10 PM (20 minutes)

The exploration of metal-organic frameworks (MOFs) in the adsorption of phosphate is a growing research area. However, the manufacturing and processability of MOFs for practical applications are often hindered by their cost and their powder form. This study pioneers the use of water-soluble organic ligands, specifically disodium terephthalate (DST) sourced from waste plastic, in the design and assembly of different MOFs such as Fe-MOF, Zr-MOF and Al-MOF in an aqueous medium. Fe-MOF demonstrated a superior phosphate adsorption capacity ($72.16 \text{ mg} \cdot \text{g}^{-1}$) which led to its selection for processing into PET composite chips, thereby enhancing recovery and recycling processes. The effect of some parameters such as contact time, the initial concentration, pH, and temperature were investigated. This innovative approach showcases the potential of sustainable MOF materials in addressing phosphate removal challenges while promoting environmental awareness.

Primary author: MOUMEN, EL MEHDI (CBS-Mohammed VI Polytechnic University)

Presenter: MOUMEN, EL MEHDI (CBS-Mohammed VI Polytechnic University)

Session Classification: Poster Session

Track Classification: Poster Presentations