



Showcasing research from Professor Jiangshan Li's laboratory, Chinese Academy of Sciences, Wuhan, China.

Red mud-based Fe/C nanostructured materials for multi-interface remediation of Cr(VI)-contaminated soil and stabilization

The co-pyrolysis of red mud and straw, two abundant solid wastes, can realize the scaled-up synthesis of biochar-supported nanoscale zero-valent iron (nZVI/BC). This red mud based Fe/C nanostructured materials altered the species evolution at the multiple interfaces of nZVI/BC-Cr(VI)-soil, where the acid-soluble Cr in soil shifted into stable residual Cr owing to the microscopically increased bidentate-binuclear inner-sphere coordination modes and the reduction process over the nZVI/BC surface. Meanwhile, the released iron species from nZVI/BC was immobilized on the soil surface, thereby regulating organic matter adsorption to recover soil agglomeration.

As featured in:



See Jiangshan Li *et al.*,
Environ. Sci.: Nano, 2025, **12**, 1116.