Active site-engineered ternary layered hydroxide electrocatalyst for oxygen evolution reaction in alkaline solution

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Discovering of efficient and cost-effective electrocatalyst for electrochemical water splitting is one of the major scientific challenges, becuase of sluggish kinetics during oxygen evolution reactions (OER) and hydrogen evolution reaction (HER). Herein, we have developed NiCoFe-LDH by facile electrodeposition method and tested it for OER. We have optimized the content of Ni, Co, and Fe in the LDH structure to achieve a low overpotential of 195 mV at 10 mA/cm^2 in 1M KOH, with long-term stability of 50 hours. The enhanced electrochemical performance is mainly attributed to its hierarchical structure, enhanced charge-transport and high electrochemical surface area with plenty of active sites