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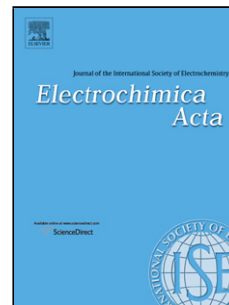
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Nanoporous PtPd Alloy Electrocatalysts with High Activity and Stability toward Oxygen Reduction Reaction

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ABSTRACT

Nanoporous (NP) PtPd alloys with three different bimetallic ratios are straightforwardly fabricated by one-step mild dealloying of PtPdAl precursor alloys in alkaline solution. These as-prepared PtPd alloys are comprised of nanoscaled bicontinuous network skeletons and interconnected hollow channels extending in all three dimensions with uniform ligament size around 5 nm. Compared with commercial Pt/C, NP-Pd, and NP-Pt catalysts, NP-PtPd alloys exhibit superior electrocatalytic activities toward oxygen reduction reaction (ORR) with much higher specific and mass activities. More importantly, NP-PtPd alloys also show superior structure stability with almost no ORR activity loss upon long-term potential scan compared with Pt/C catalyst. The ORR performance follows the order of NP-Pt₇₅Pd₂₅ > NP-Pt₂₀Pd₈₀ > NP-Pt₅₀Pd₅₀ > NP-Pt > Pt/C > NP-Pd. NP-PtPd alloys hold great application potential as

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