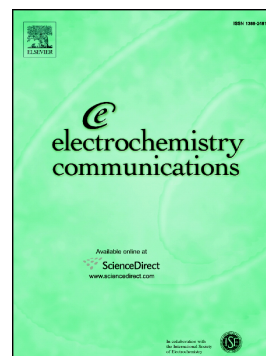


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**High-index facet defined shape-controlled electrochemical synthesis of nanocrystals: A
mini review**

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Abstract

Shape-controlled nanocrystals enclosed by high-index facets have received increasing attention in recent years because of their ground-breaking applications in diverse fields such as energy storage (fuel cells, batteries, and supercapacitors) and sensors (Bio and chemical), due to their high-energy surface area, intrinsic nature and structural orientations. For this motive, significant efforts have been put into the design and synthesis of controlled-shape nanocrystals using rigorous time consuming chemical templates. However, electrochemical synthesis surpassed wet chemical synthesis and is considered to be the key approach for high-index facet defined nanocrystals. The tuning of material structure, shape and performance at the nanoscale is mostly doable with electrochemical technologies with controlled potential. In this perspective, we highlight the facet dependent various shape nanostructures and their electrocatalytic behavior, recent development, the aspects of high-index facets towards the ultrasensitive detection, and their scalable applications in sensors.

Key Words: Shape-controlled nanocrystals, electrochemical synthesis, High-index facet, electrocatalytic behavior and sensors.

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