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Sommario/riassunto	Research on alternative energy harvesting technologies, conversion and storage systems with high efficiency, cost-effective and environmentally friendly systems, such as fuel cells, rechargeable metal-air batteries, unitized regenerative cells, and water electrolyzers has been stimulated by the global demand on energy. The conversion between oxygen and water plays a key step in the development of oxygen electrodes: oxygen reduction reaction (ORR) and oxygen evolution reaction (OER), processes activated mostly by precious metals, like platinum. Their scarcity, their prohibitive cost, and declining activity greatly hamper large-scale applications. This issue reports on novel non-precious metal electrocatalysts based on the innovative design in chemical compositions, structure, and morphology, and supports for the oxygen reaction.