

Recent Development of Aprotic Na-O₂ Batteries



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Invited for this month's cover picture is the group of Prof. Li from Key Laboratory of Advanced Energy Materials Chemistry (Ministry of Education) of Nankai University and Prof. Chan from Department of Chemistry of University of Hong Kong. The cover picture illustrates a promising aprotic Na-O₂ battery with a Na metal anode, a porous oxygen diffusion cathode, and discharge product of NaO₂. Read the full text of the Review at 10.1002/batt.201900015.

What prompted you to investigate this topic/problem?

The growing demand on higher energy density batteries calls for brand-new battery systems. The Na-O₂ battery system is merited with both high energy density and low discharging and charging overpotentials, furthermore, cheap and abundant sodium sources exist. Although the theoretically attractive Na-O₂ battery is faced with many challenges and research is still in an infancy stage, this battery system draws greatly our interest.

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What future opportunities do you see (in the light of the literature review presented in this paper)?

The further development of aprotic Na-O₂ batteries may focus on innovation of material design, for example, an alloyed Na anode, ionic liquid or solid-state electrolyte, carbon-free cathode in which the battery could achieve high energy and power density, long cycle life, better stability, and safety.

What is in your opinion an upcoming research theme likely to become one of the "hot topics" in the near future?

The research in Na-O₂ batteries is at an initial stage compared to Li-O₂ batteries and commercial Li-ion batteries. With growing attentions from worldwide scientists, it will not be too long until the study of Na-O₂ batteries becomes one of the next "hot topics".

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