

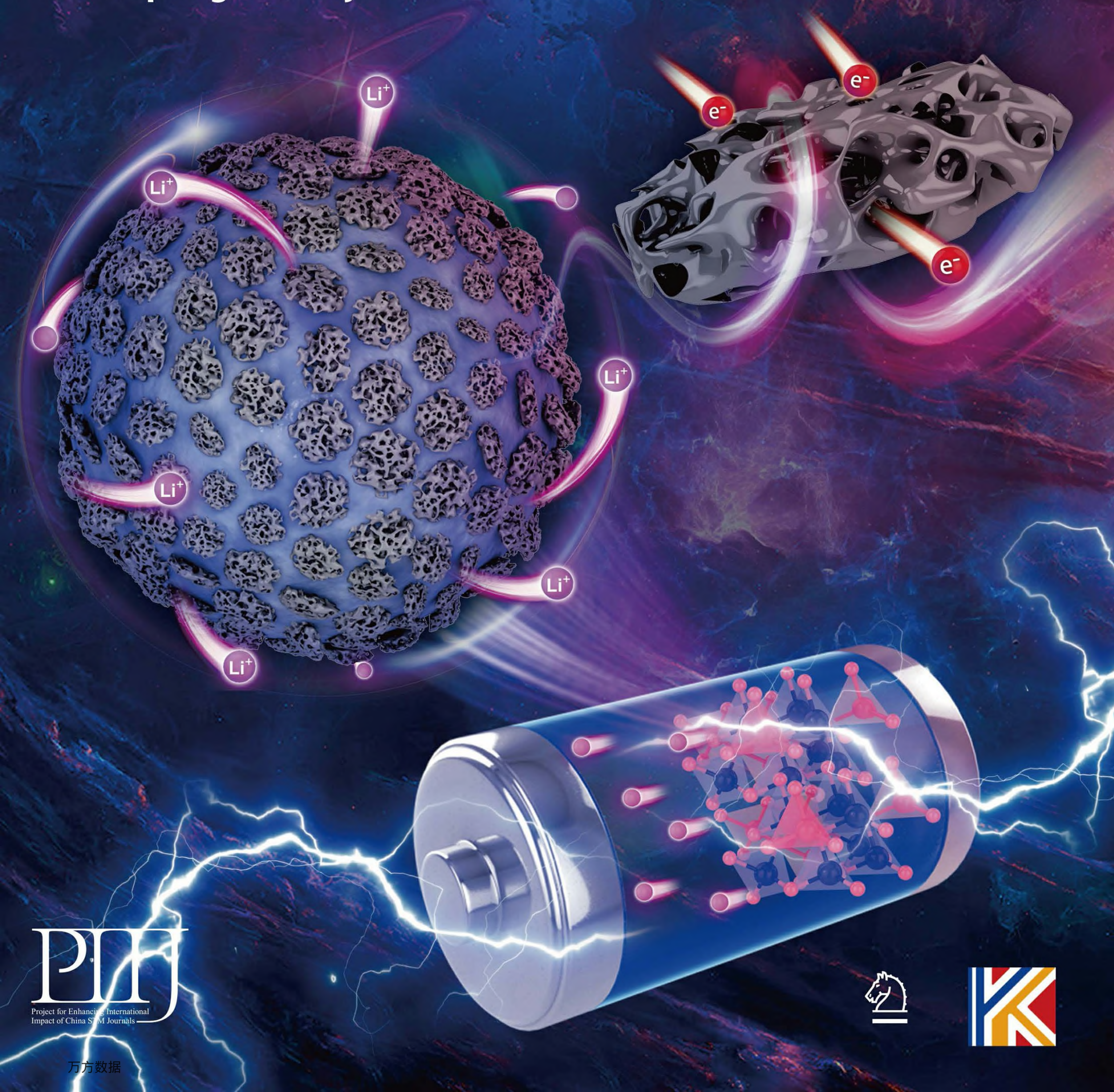
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W.-W. Gou et al. Agitation drying synthesis of porous carbon supported Li₃VO₄ as advanced anode material for lithium-ion batteries

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Cover story

(Wen-Wen Gou, Shuang Zhou, Xin-Xin Cao* , Yi-Lin Luo, Xiang-Zhong Kong, Jing Chen, Xue-Fang Xie, An-Qiang Pan*, pp. 3466–3476)

Hierarchically Porous Carbon Decorated Li_3VO_4 as Advanced Anode for Lithium-Ion Batteries

Developing lithium ion batteries with high energy density for large-scale energy storage system is an effective way to alleviate the increasing energy and environmental issues. Among numerous candidates, Li_3VO_4 has been considered as a promising insertion-type anode for lithium-ion batteries due to its high theoretical specific capacity and suitable operating voltage platform. However, this promising anode still suffers from poor electrical conductivity. In this issue, Pan et al. successfully designed double carbon coated LVO composites with porous structure via facile agitation-drying method combined with subsequent calcination, in which Ketjen black carbon with high porosity, easy dispersion and excellent conductivity can serve as one of carbon source. The $\text{Li}_3\text{VO}_4/\text{C}$ composite prepared at 700 °C with a carbon content of about 10% exhibits the optimized structure. The void space of the composite accommodates the volume changes during the charge/discharge process. Meanwhile, the carbon shell serves as a conductive skeleton to provide bi-continuous Li ions and electrons pathways. The as-prepared $\text{Li}_3\text{VO}_4/\text{C}$ composites exhibit good cycling stability and excellent rate capability, which can be promising alternative anode material for high energy density lithium ion batteries.

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