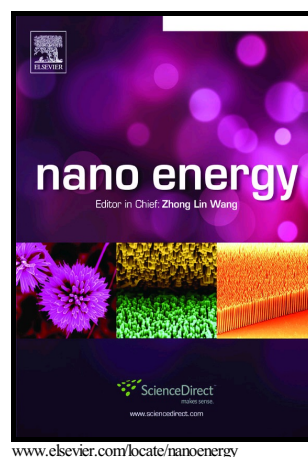


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Abstract

Lithium metal has been considered as the most ideal anode in lithium based batteries due to its high specific theoretical capacity and lowest working potential. Nevertheless, the growth of dendritic or mossy Li, the crush of solid electrolyte interface (SEI) layer and the successive reactions between the fresh Li metal and electrolytes hinder the commercialization of Li metal anode. In this paper, we utilize an environmental–friendly and low–cost one–step facile vacuum distillation approach to fabricate the 3D porous Cu current collector from commercial brass foil (Cu–Zn alloy) for Li metal anodes. The continuous porous 3D Cu skeleton is obtained after the vacuum distilled the low boiling point Zn (907 °C) component. The voids of the 3D porous copper can be easily regulated by adjusting the distillation temperature and time. As a current collector, the as–prepared 3D porous copper can inhibit the growth

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