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(54) **NANO-SILICON COMPOSITE MATERIAL
AND PREPARATION METHOD THEREOF,
ELECTRODE MATERIAL, AND BATTERY**

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(57) **ABSTRACT**

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In fields related to battery cathode material technologies, a nano-silicon composite material and a preparation method thereof, an electrode material, and a battery are provided to resolve large volume expansion of a cathode material of a battery and a serious side reaction with an electrolyte. The nano-silicon composite material includes a core, a first coating layer, and a second coating layer. The core includes a nano-silicon crystal. The first coating layer covers a surface of the core. The first coating layer is of a porous structure. A material of the first coating layer includes bisilicate and silicon oxide in a deoxidized state. The second coating layer covers a surface of the first coating layer. A material of the second coating layer includes silicon dioxide in a deoxidized state.

