# Claims

What is claimed is:

1. A preparation method of a solid-state electrolyte containing Anderson-type polyoxometalate, comprising the following steps:

S1: mixing the polyoxometalate with a solid-state electrolyte, and performing ball milling on the resulting mixture to obtain a mixed electrolyte; and

S2: calcining the mixed electrolyte to obtain a polyoxometalate-modified solid-state electrolyte;

wherein a structural formula of the polyoxometalate is: $(NH_4)_x[MMo_6O_{18}(OH)_6]$, wherein X is 1, 2, 3, 4, or 5, and M comprises one of Fe, Ni, Cu, Cr, or Co;

wherein in Step S2, a calcination temperature is 400°C-700°C, a calcination duration is 6 h-9 h, and a heating rate during calcination is 0.1°C/min-1°C/min.

2. The preparation method according to claim 1, wherein in Step S1, the polyoxometalate is the Anderson-type polyoxometalate, and a preparation method of the Anderson-type polyoxometalate is as follows:

dissolving ammonium molybdate or ammonium molybdate tetrahydrate in water, heating the resulting solution to boiling and maintaining the solution in a boiling state, and dropwise adding a metal salt solution; after dropwise addition, performing constant-temperature reaction, filtering the resulting reactant while hot, and performing constant-temperature standing and recrystallization, to obtain the Anderson-type polyoxometalate.

3. The preparation method according to claim 2, wherein a metal salt in the metal salt solution comprises one or more of nitrates and sulfates of a metal, wherein the metal comprises one or more of iron, nickel, copper, chromium, and cobalt; and a mass ratio of the metal salt to ammonium molybdate tetrahydrate is (2-4):(4-8).

4. The preparation method according to claim 2, wherein a temperature for the

constant-temperature reaction is 90°C-110°C, and a duration for the constant-temperature reaction is 20 min-60 min.

5. The preparation method according to claim 1, wherein in Step S1, a stoichiometric ratio of the polyoxometalate to the solid-state electrolyte is (1-5):(70-95).

6. The preparation method according to claim 1, wherein in Step S1, a ball milling speed is 300 r/min-600 r/min, and a ball milling duration is 2 h-8 h.

7. A solid-state electrolyte containing Anderson-type polyoxometalate prepared by the preparation method according to claim 1.

8. Use of the solid-state electrolyte containing Anderson-type polyoxometalate according to claim 7 in an all-solid-state battery.

9. Use of the solid-state electrolyte containing Anderson-type polyoxometalate according to claim 7 in preparation of a composite anode material, specifically comprising: mixing a anode material, the solid-state electrolyte containing Anderson-type polyoxometalate, and a vapor-grown carbon fiber and performing ball milling on the resulting mixture to prepare the composite anode material.