Supporting Information

New hierarchical zinc silicate nanostructures and their application in lead ions adsorption

Jin Qu [a,b], Chang-Yan Cao [a], You-Li Hong [b,c], Chao-Qiu Chen [a,b], Pei-Ping Zhu [c], Wei-Guo Song [a,*], Zi-Yu Wu [c,d,*]

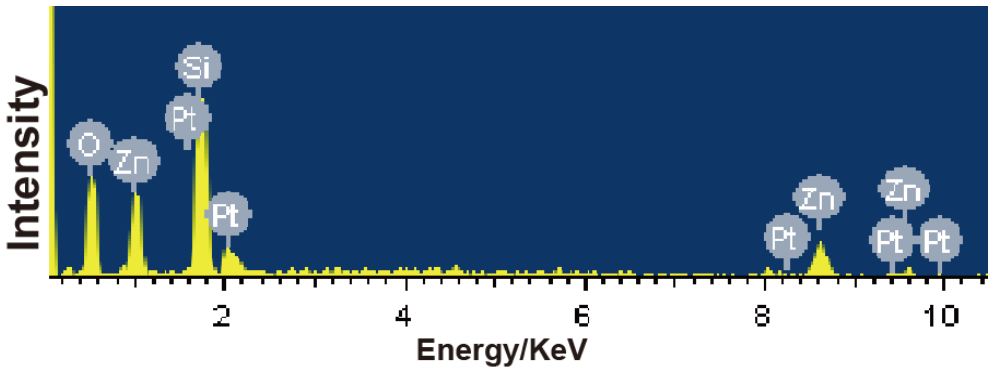

Fig. S1 EDX analysis of the flower-like zinc silicate.

The signal of Pt was originated from the sputtered platinum to enhancing electronic conductivity of the sample for SEM measurement in the experiment.

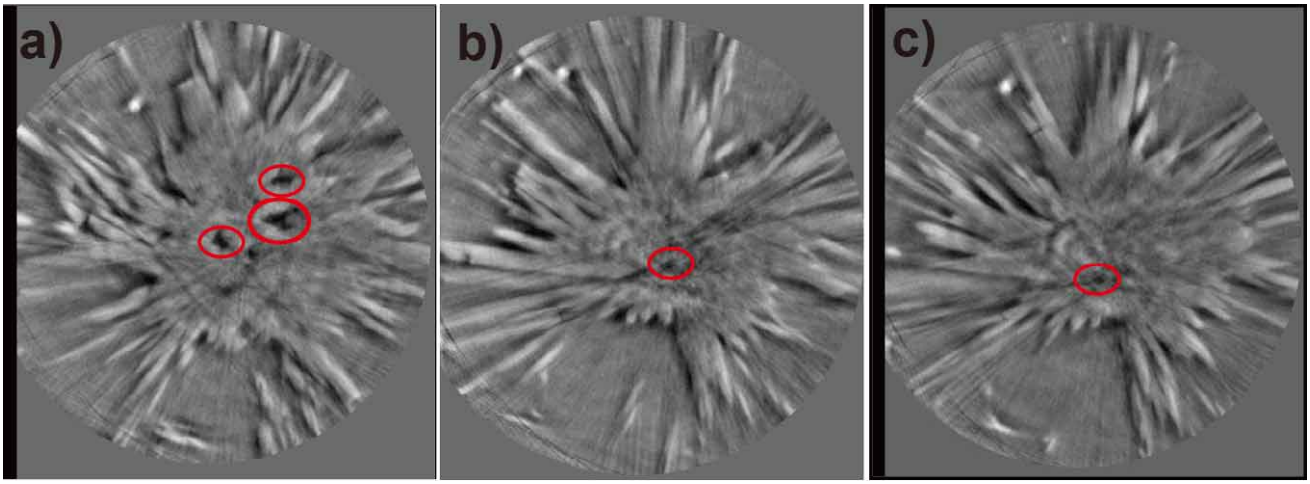

Fig. S2 Reconstructed slice images of the urchin-like zinc silicate.

Black should be hollow which were marked in red circles.

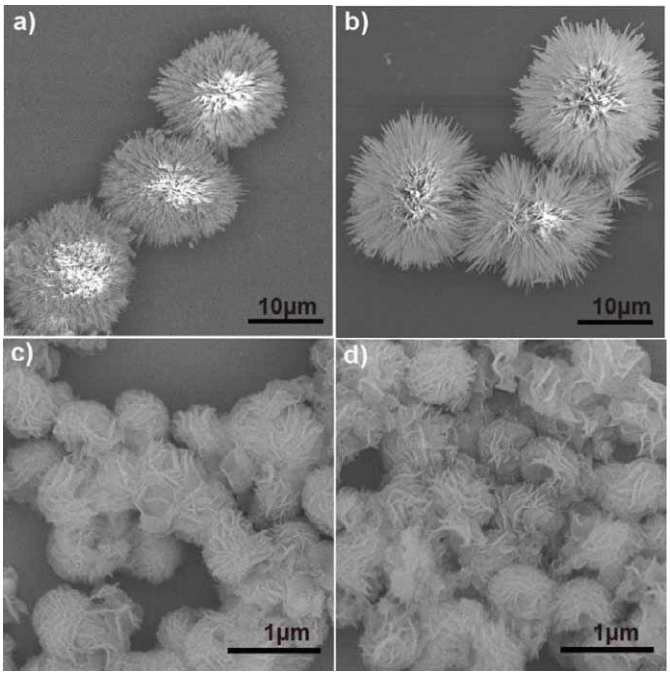

Fig. S3 SEM images: a) Zn:Si molar ratio =2:1and c) Zn:Si molar ratio = 3:5 with $Zn(NO_3)_2$ instead of $ZnCl_2$; b) Zn:Si molar ratio = 2:1and d) Zn:Si molar ratio = 3:5 with $Zn(Ac)_2$ instead of $ZnCl_2$

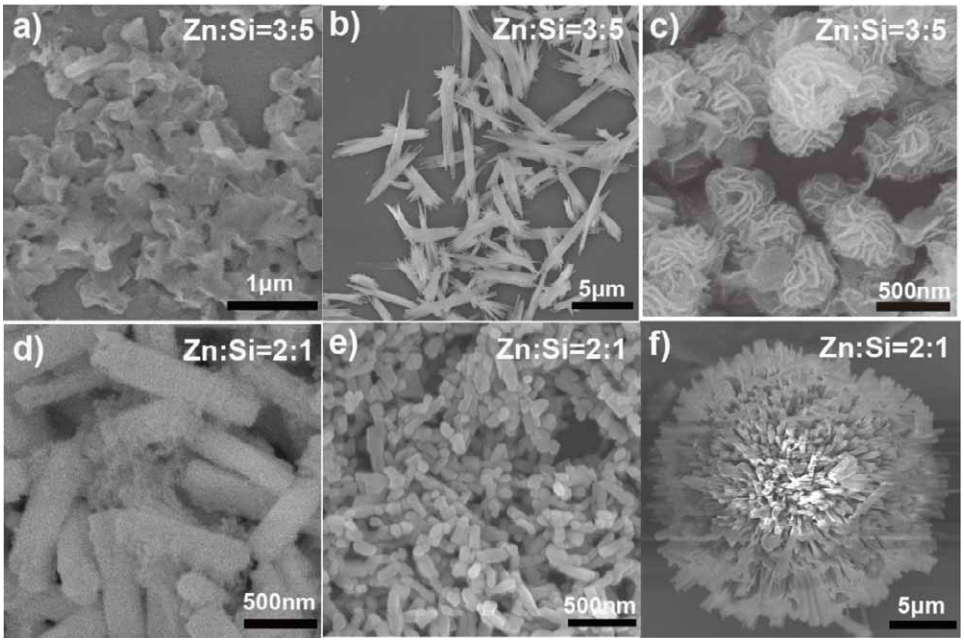

Fig. S4 SEM images: without $NH_3.H_2O$: a) Zn:Si molar ratio =3:5, d) Zn:Si molar ratio =2:1; without NH_4Cl: b) Zn:Si molar ratio =3:5, e) Zn:Si molar ratio =2:1; with NH_4F instead of NH_4Cl: c) Zn:Si molar ratio =3:5, f) Zn:Si molar ratio =2:1.

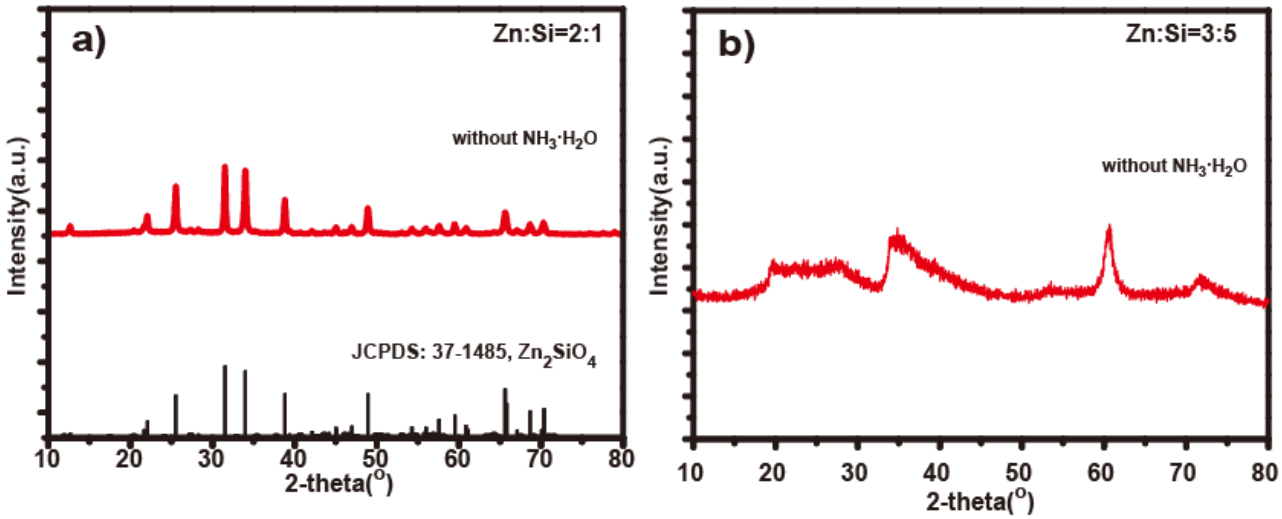

Fig. S5 XRD patterns of the samples fabricated without $NH_3.H_2O$: a) Zn:Si molar ratio =2:1, b) Zn:Si molar ratio =3:5.

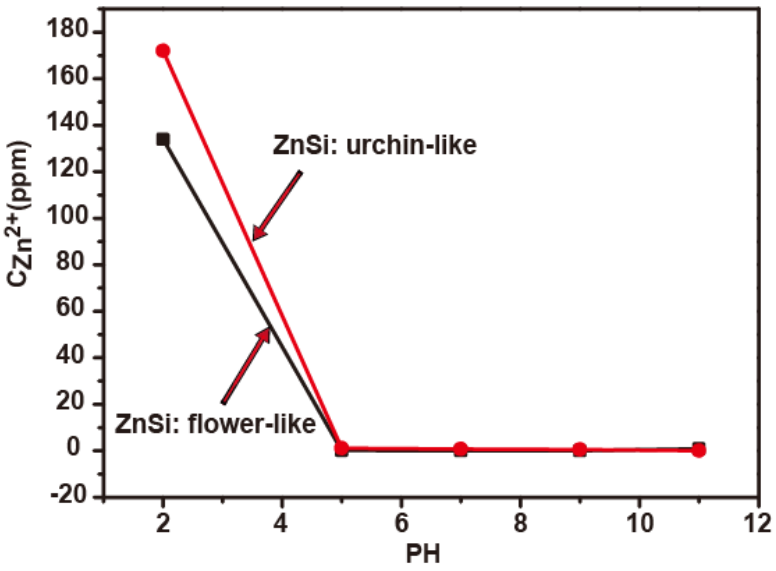

Fig. S6 The concentration curves of Zn^{2+} ions from as-prepared zinc silicates as a function of pH value.

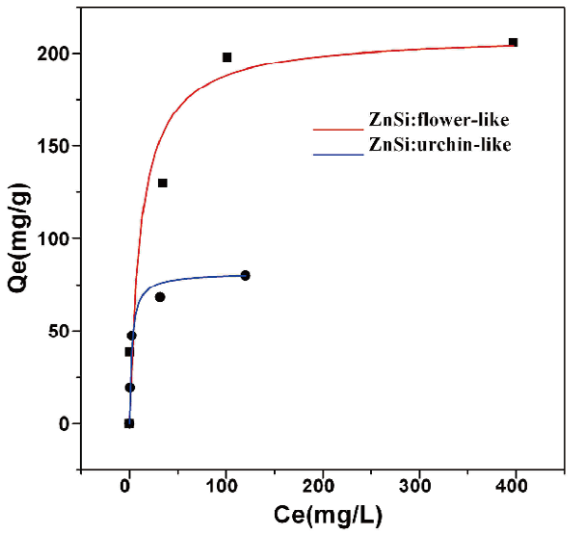

Fig. S7 Adsorption isotherms of lead ions on the as-prepared zinc silicates at room temperature. Ce: the equilibrium concentration of the Pb^{2+} solution; Qe: the amount of Pb^{2+} adsorbed at equilibrium.

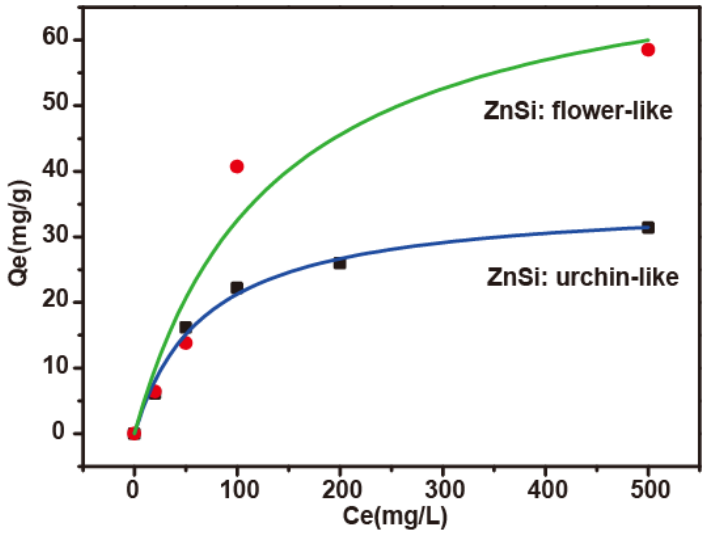

Fig. S8 Concentration isotherms of zinc ions on the as-prepared zinc silicates at room temperature. Ce: the initial concentration of the Pb^{2+} solution; Qe: the amount of Zn^{2+} at equilibrium.