Supporting information for

High-Tap Density Flower-like $LiFePO_4$ microsphere developed by combined computational and experimental approaches

Yuan Jin, Xincun Tang*, Yang Wang, Wei Dang, Jie Huang, Xiong Fang

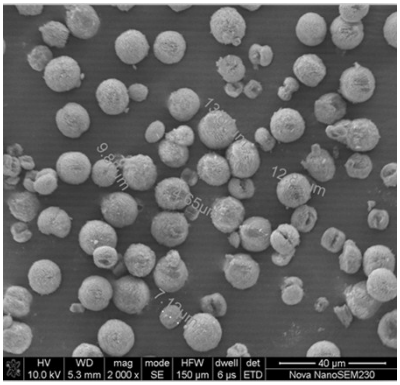

Fig. S1 SEM images of samples prepared with glycol solvent at 180°C for 10 h

As shown in Fig. S1, it is clear that the sample consists of microspheres with three diameters distribute in 14μm, 7 μm and 2 μm. The tap density of the ternary unequal spheres is about 1.515 g cm^{-3}.

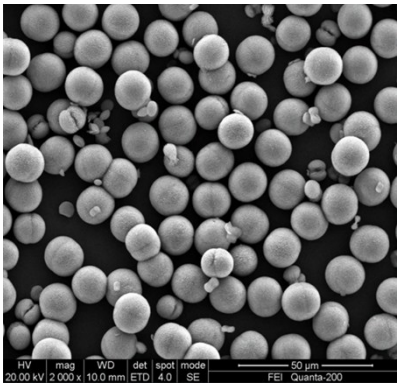

Fig. S2 SEM images of samples prepared with glycol solvent at 200°C for 24h

(Reference: YuanJin, XincunTang, RSC.Adv, 2016, 6, 75602-75608)

As shown in Fig. S2, the sample consists of microspheres with uniform and monodisperse microsphere morphology assembled by nanosheets, whose average diameter is about 15μm. Note that the $LiFePO_4$ microspheres with unique morphology here promise an ultrahigh powder tap density of 1.4 g/cm^3, higher than those reported values in references.

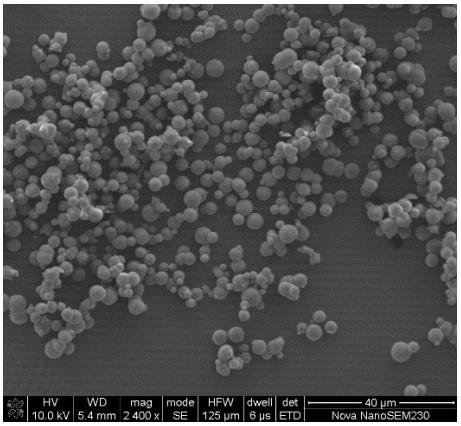

Fig. S3 SEM images of samples prepared with water/diethylene glycol (DEG)

mixed solvent (1:7, v/v) at 200°C for 24h

As shown in Fig. S3, at the radius ratio r/R of 0.302, the tap density of the binary unequal spheres is about 1.436 g cm^{-3}.

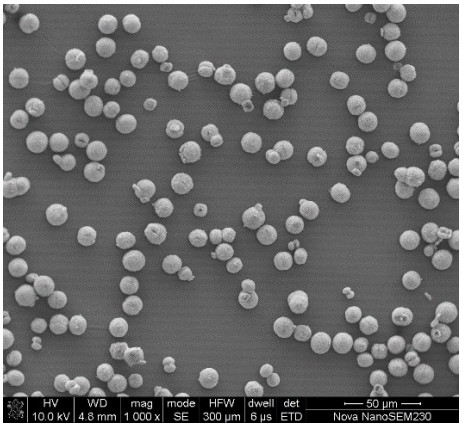

Fig. S4 SEM images of samples with diethylene glycol (DEG) solvent at 200°C for 24h

As shown in Fig. S4, at the radius ratio r/R of 0.812, the tap density of the binary unequal spheres is about 1.188 g cm^{-3}.