Supplementary Information

Effect of Nanoparticle Packing on Capacitive Electrode Performance

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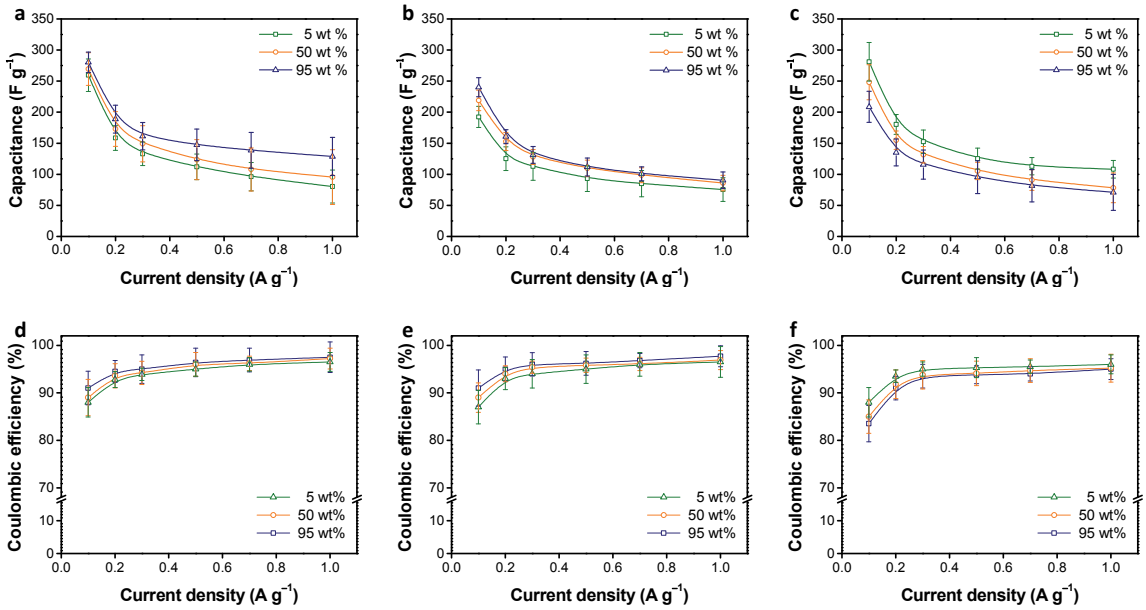

Figure S1. Plots of (a-c) C_g and (d-f) E_c of the binary nanosphere mixtures randomly packed with three different ϕ_1/ϕ_2 at three different f_m values as a function of current density: (a,d) 20/60, (b,e) 60/100, and (c,f) 100/20.

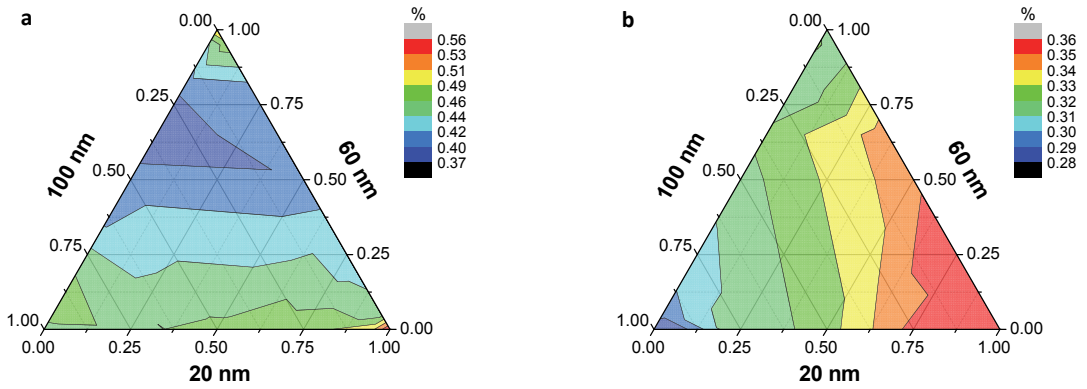

Figure S2. Simulated packing density. Ternary diagrams showing f_v distribution of the binary nanosphere mixtures packed in a container (500 nm^3) calculated using the simulation techniques: (a) static simulation and (b) dynamic simulation.

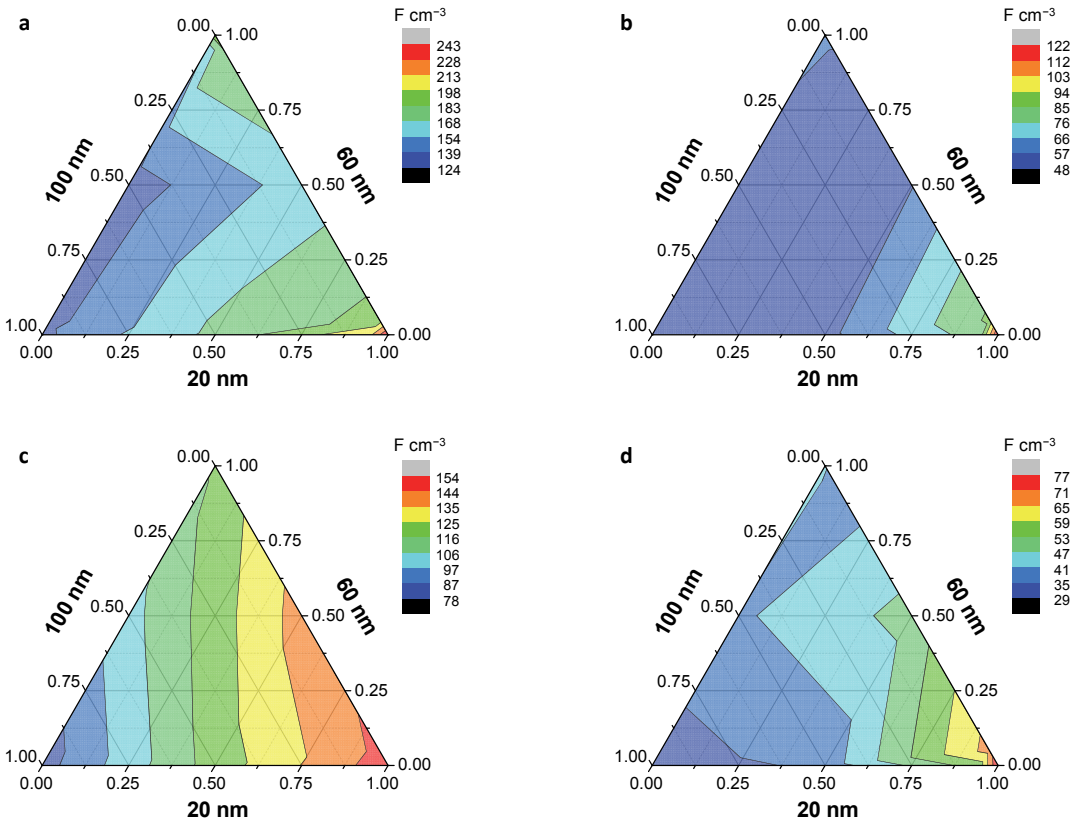

Figure S3. Electrode consisting of the binary PPy nanosphere mixture. Ternary diagrams for the nanospheres of three different diameters showing the distribution of C_v as a function of f_m measured at (a,c) 0.1 A g^{-1} and (b,d) 1.0 A g^{-1}. The packing densities calculated through the (a,b) static simulation and (c,d) dynamic simulation were used.

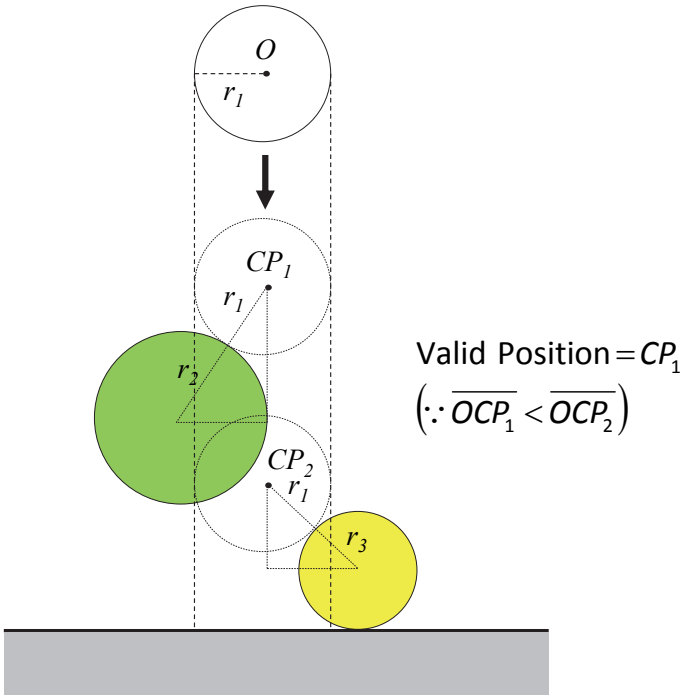

Figure S4. Schematic of nanosphere position determination.

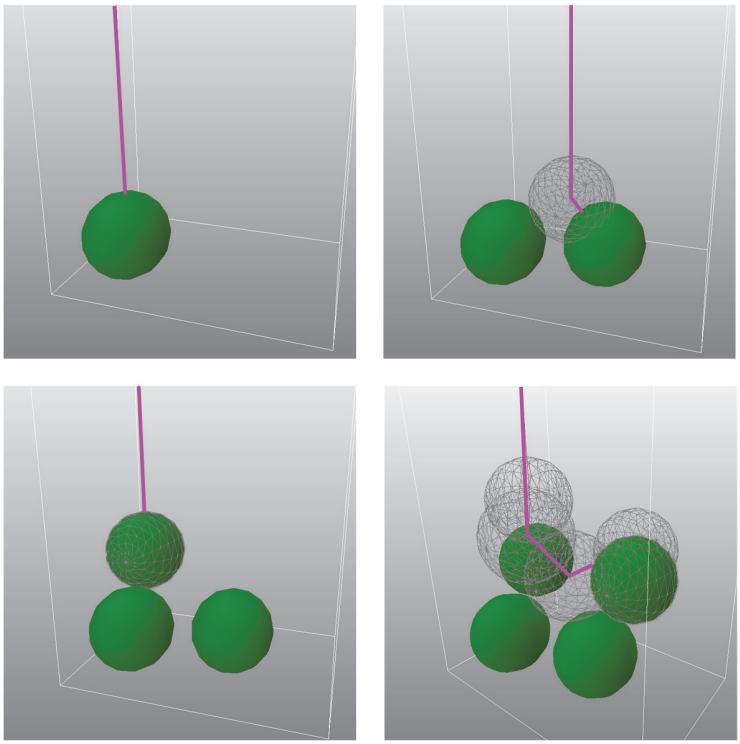

Figure S5. Examples of bouncing nanospheres.