Supporting Information

High-performance Stretchable Electrode Prepared from Elastomeric Current Collector and

Binder

Ao Zhou, Richard Sim, Yingwu Luo, Xiang Gao*

Table S1. GPC curves of the SBAS copolymer samples with different molecular weight.				
Туреѕ	Theoretical M _n	Conversion	GPC M _n	PDI
	[g mol ⁻¹]		[g mol ⁻¹]	
SBAS(15k-90k-15k)	15k	89.92%	14400	1.23
	15k-90k	98.58%	104200	1.90
	15k-90k-15k	95.12%	120100	1.94
SBAS(15k-120k-15k)	15k	91.88%	16100	1.25
	15k-120k	95.27%	130100	1.64
	15k-120k-15k	98.26%	144800	2.41
SBAS(15k-150k-15k)	15k	96.44%	16800	1.34
	15k-150k	96.74%	161800	1.76
	15k-150k-15k	92.46%	175700	2.58



Fig. S1 TEM images of SBAS latex particles. The PSt phase was stained by ruthenium tetroxide (RuO₄).



Fig. S2 The photographs of SBAS/SWCNTs composite under (a) bending, (b) twisting, and (d) stretching.



Fig. S3 The conductivities of SBAS/SWCNTs composites with different SWCNTs content at different strains, when the chain structure of SBAS is (a)15k-90k-15k or (b)15k-150k-15k.



Fig. S4 The conductivities of SBAS/SWCNTs composites with different chain structure of SBAS at different strains, when the content of SWCNTs is (a)2.5wt%, (b)5wt%, (c)10wt% and (d)15wt%.



Fig. S5 The stress-strain curves of conductive elastomers which are made of SBAS(15k-120k-15k) with different content of SWCNTs.



Fig. S6 Discharge/charge voltage profiles of the stretchable (a) LFP cathode and (b) LTO anode at 1C.



Fig. S7 Cycling performance of the stretchable (a) LFP cathode and (b) LTO anode at various rates.



Fig. S8 The section morphologies of the stretchable LFP cathode and LTO anode (a,c) before and (b,d) after experiencing tensile deformation, respectively.



Fig. S9 SEM images of stretchable LFP electrodes (a,c) before and (b,d) after being stretched for 100 times at 80% tensile strain. All the samples have swelled liquid electrolyte for 12 h before stretching and observation.



Fig. S10 SEM images of stretchable LTO electrodes (a,c) before and (b,d) after being stretched for 100 times at 80% tensile strain. All the samples have swelled liquid electrolyte for 12 h before stretching and observation.



Fig. S11 Rate performances of (a) LFP cathodes and (b) LTO anodes that have experienced 100 "stretch-release" cycles at different strain, using SBAS(15k-120k-15k)/SWCNTs(10 wt%) as the current collector.



Fig. S12 Discharge/charge voltage profiles of the stretchable (a) LFP cathode and (b) LTO anode that have experienced 100 stretch-release cycles at different tensile stain.



Fig. S13 Cycling performance of stretchable (a) LFP cathode and (b) LTO anode that have experienced 100 stretch-release cycles at different tensile stains, using SBAS/SWCNTs (5 wt%) as current collector.



Fig. S14 Photograph of two full LFP/LTO coin cells in series to light a blue LED.