Supplementary Materials

Electrochemically active materials as critical components for next-generation solid-state electrolytes

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Supplementary Table 1. Successful examples of EAM-based SSEs and summary of their electrochemical properties and performance

EAMs	EAMs potential (V, *vs.* Li^+/Li)	Decoupling strategies	Polymer in EAMs layer (wt.%)	Insulation component	Total ionic conductivity (S cm^{-1})	Total electronic conductivity (S cm^{-1})	Electrochemical stable potential (V)	SSLMBs performances [Rate (C)-Capacity (mAh g^{-1})-Cycle number-Retention (%)]		Ref.
								Li‖LFP	Li‖NCM811	
$Li_4Ti_5O_{12}$	~1.5	Composite system	20	PVDF	2.87×10^{-4}	2.8×10^{-9}	5	0.5-150-250-99.7 5-131-400-90	/	[1]
$LiMn_2O_4$	~4.1		30	PVDF	5.17×10^{-4}	$<10^{-9}$	4.5	0.5-147.7-200-96	/	[2]
$Li_{3.88}Na_{0.12}Ti_5O_{12}$	~1.5	Element doping & composite system	20	PVDF	4.49×10^{-4}	3.3×10^{-9}	5	0.5-158.3-200-97.6 5-134.4-400-90.7	1-142-100-91.1 (4.3 V)	[3]
$Li_{0.95}Na_{0.05}FePO_4$	~3.4		50	PVDF	3.58×10^{-4}	$<10^{-9}$	5.1	0.5-157-500-96.5	1-195.6-170-80 (4.3 V)	[4]
$LiMn_2O_4$	~4.1	Multilayer structure	10	PE interlayer	3.15×10^{-4}	7.31×10^{-11}	4.5	1-150.4-500-95.8	1-174-180-80 (4.3 V)	[5]
$LiCoO_2$	~3.7		20	PP interlayer	4.02×10^{-4}	4.6×10^{-10}	5	0.5-149.7-800-93.6	1-198.9-328-80 (4.3 V)	[6]
$Li_4Ti_5O_{12}$	~1.5		~0 (cold-pressing)	UV polymerized poly-acrylate (UVEA)	3.98×10^{-4}	6.65×10^{-9} (UVEA)	4.6 (UVEA)	/	0.2-125-70-91 (4.2 V)	[7]
LiV_3O_8	~2.6				5.68×10^{-4}					

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