Support information

A Simple but Efficient Lithium-doping Approach for Enhancing Supercapacitor Performance of the $BiFeO_3$ Perovskite Nanostructures

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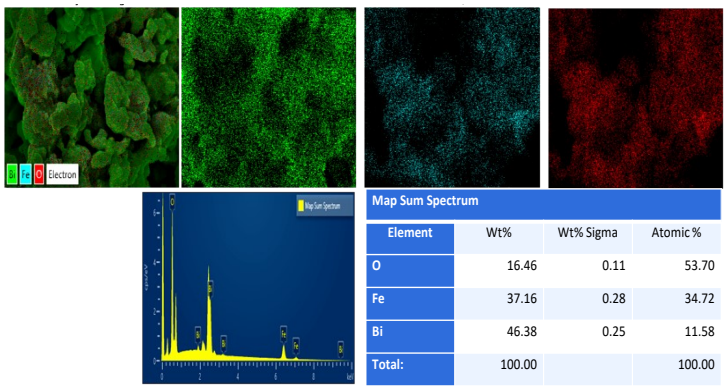
Table S1: Elemental wt.% details obtained for $Bi_1Li_0FeO_3$ (BLF-A), $Bi_{0.95}Li_{0.05}FeO_3$ (BLF-B), $Bi_{0.90}Li_{0.10}FeO_3$ (BLF-C), $Bi_{0.85}Li_{0.15}FeO_3$ (BLF-D), and $Bi_{0.8}Li_{0.2}FeO_3$ (BLF-E).

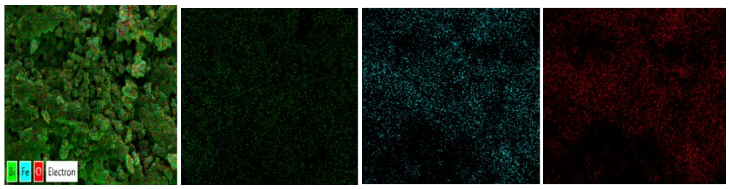
Electrode	Fe wt.%	Bi wt.%	O wt.%	Bi/Fe	Electrode
$Bi_1Li_0FeO_3$ (BLF-A)	37.16	46.38	16.46	1.25	a
$Bi_{0.95}Li_{0.05}FeO_3$ (BLF-B)	21.28	64.40	14.32	3.03	b
$Bi_{0.90}Li_{0.10}FeO_3$ (BLF-C)	**20.03**	**65. 48**	**14.50**	**3.27**	**c**
$Bi_{0.85}Li_{0.15}FeO_3$ (BLF-D)	33.15	55.22	11.63	1.66	d
$Bi_{0.8}Li_{0.2}FeO_3$ (BLF-E)	33.67	46.80	19.81	1.33	e

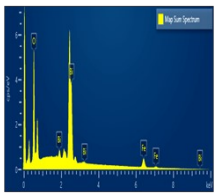
A)



Map Sum Spectrum			
Element	Wt%	Wt% Sigma	Atomic %
O	16.46	0.11	53.70
Fe	37.16	0.28	34.72
Bi	46.38	0.25	11.58
Total:	100.00		100.00

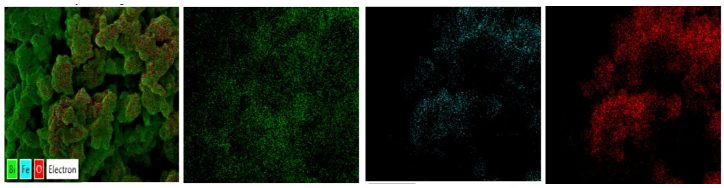
B)

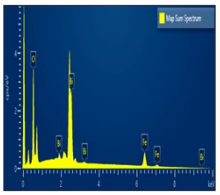




Map Sum Spectrum			
Element	Wt%	Wt% Sigma	Atomic %
O	14.32	0.12	56.49
Fe	21.28	0.33	24.05
Bi	64.40	0.31	19.45
Total:	100.00		100.00

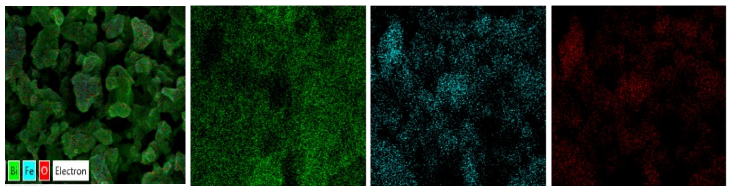
c)

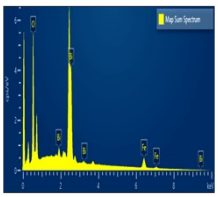




Map Sum Spectrum			
Element	Wt%	Wt% Sigma	Atomic %
O	11.63	0.10	45.86
Fe	33.15	0.34	37.46
Bi	55.22	0.31	16.67
Total:	100.00		100.00

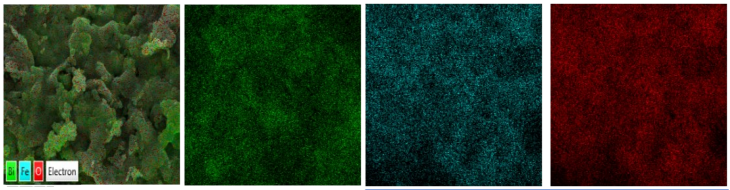
D)

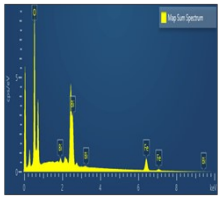




Map Sum Spectrum			
Element	Wt%	Wt% Sigma	Atomic %
O	14.50	0.10	57.42
Fe	20.03	0.29	22.73
Bi	65.48	0.26	19.86
Total:	100.00		100.00

E)





Map Sum Spectrum			
Element	Wt%	Wt% Sigma	Atomic %
O	19.52	0.12	59.61
Fe	33.67	0.28	29.45
Bi	46.80	0.24	10.94
Total:	100.00		100.00

Fig. S1: a-e) Obtained O, Fe and Bi wt.% proportions confirmed by the surfaces of different electrodes.

Table S2. Comparison of Energy Storage Performance of perovskite as Positive Electrodes of a Supercapacitor-Hybrid Device with Other Electrode Active Materials and Devices Reported in the Literature.

	Electrode	electrolyte	Ed (Wh kg^{-1})	Pd (W kg^{-1})	SC (F/g)	RE
1	$TiO_2/BiFeO_3$	0.5 M Na_2SO_4	58.5	1200	440	[1]
2	$MnFe_2O_4$/rGO	6 M KOH	15.9	324.5	271	[2]
3	rGO-$NiFe_2O_4$	1 M Na_2SO_4	23.7	225	210.9	[3]
4	$BiFeO_3$ -RGO	3 M KOH	6.65	190	92.43	[4]
5	LCM050/ LCM050	1M KOH	7.6	160	21.7	[5]
7	BFMO// BFMO	3 M NaOH	19	325	81.57	[6]
8	Co–Ni/Bi// Co–Ni/Bi	1 M Na_2SO_4	26.21	100	125.79	[7]
10	**BLF-C//Bi_2S_3**	**6 M KOH**	**48.65**	**750**	**155.6**	Our work

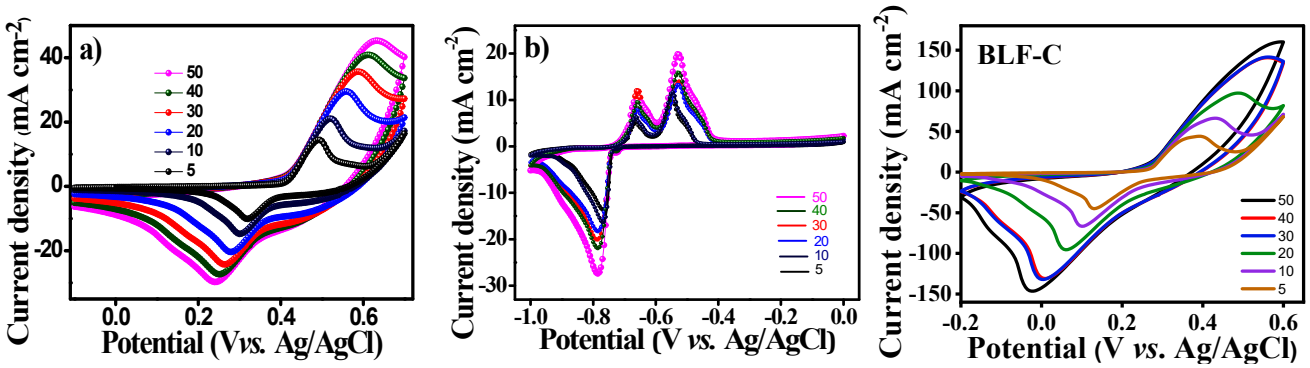


Fig. S2: CV spectrums of the; (a) Bi_2O_3, (b) Fe_2O_3, and (c) BLF-C electrodes.

Reference

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