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Article

Three-Dimensional Fibrous Iron as Anode Current Collector for Rechargeable Zinc-air Batteries

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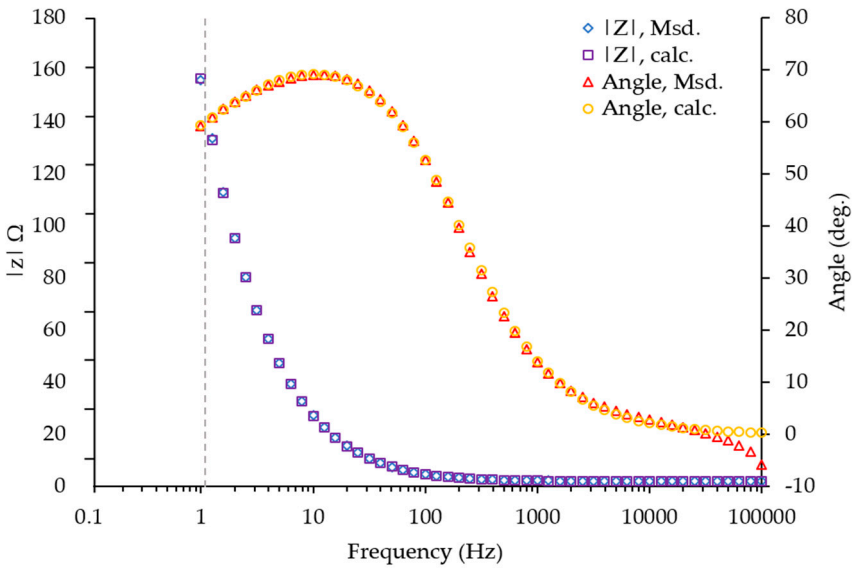
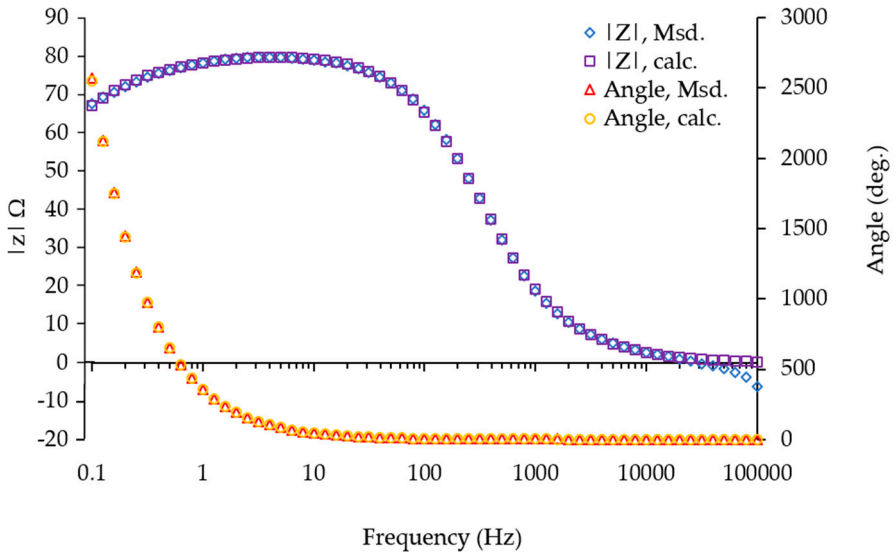
Table S1. Surface area, pore volume, and average pore diameter (N_2 adsorption–desorption isotherm) of different bare and anode samples.

No.	Sample	BET Surface Area (m^2/g)	Pore Size (nm)	Pore Volume (cm^3/g)
1	Iron Fibers (bare)	0.07	2.801	0.091
2	Nickel Foam (bare)	1.20	3.302	0.12
3	Zinc-Iron fiber	0.90	2.246	0.052
4	Zinc- Nickel foam	4.09	2.804	0.087

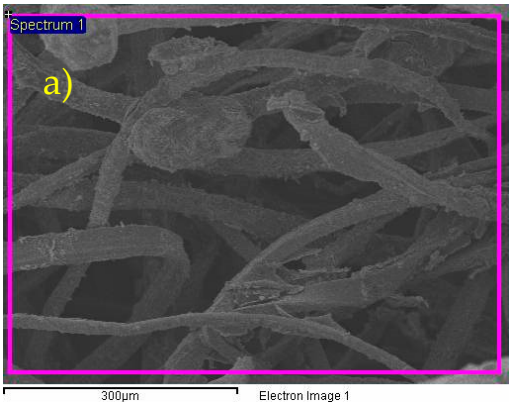


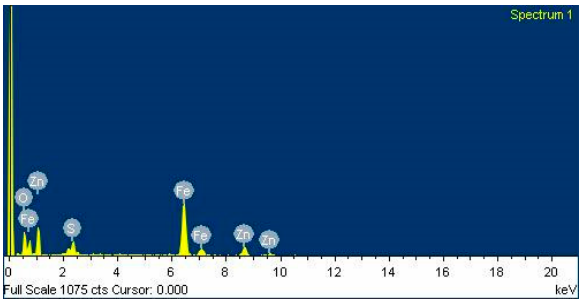
(a)



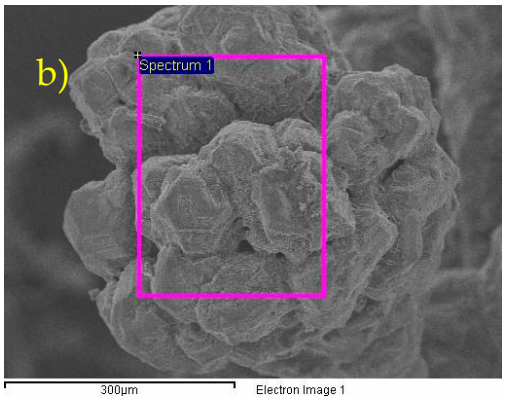
(b)

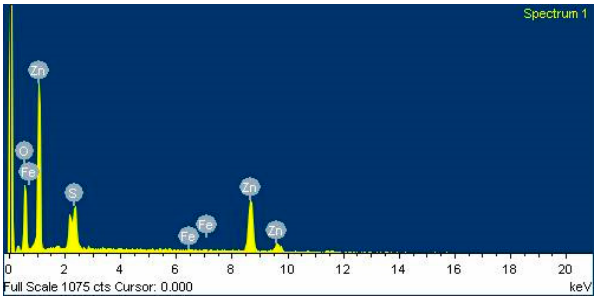
Figure S1. Bode diagrams of fitted EIS lines at a starting frequency of 100 kHz to 0.1 Hz for (**a**) Zn/IF and (**b**) Zn/NF electrode around OCV in electrolyte solution.



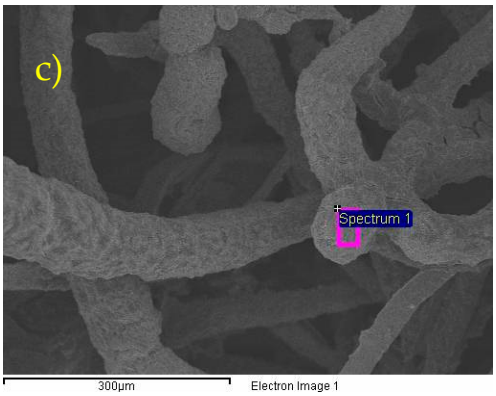


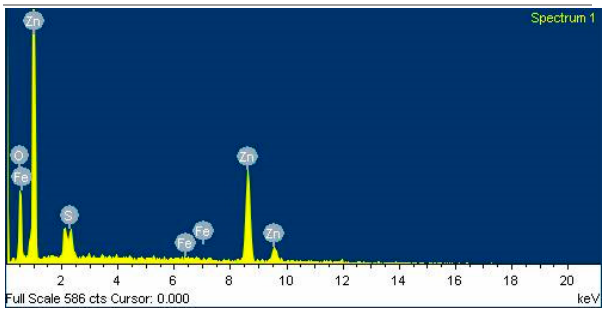
Element	App Conc.
Fe K	22.69
Zn K	8.83



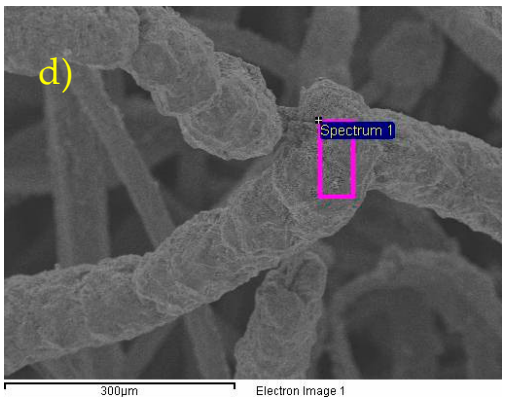


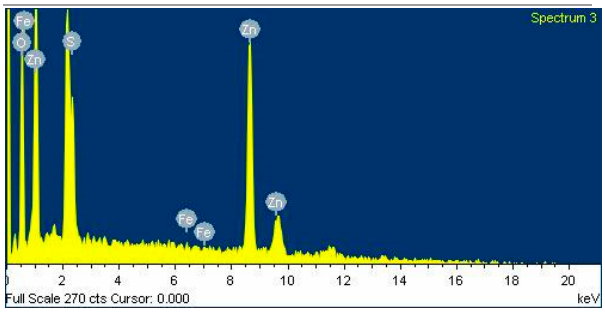
Element	App Conc.
Fe K	10.09
Zn K	35.40





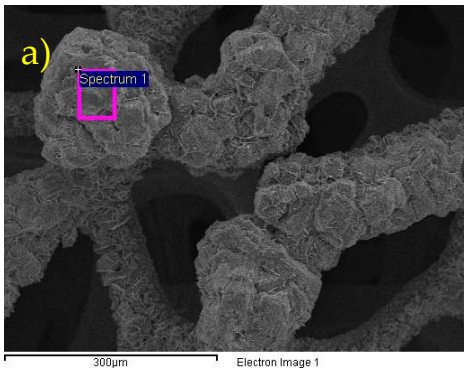
Element	App Conc.
Fe K	0.55
Zn K	50.44

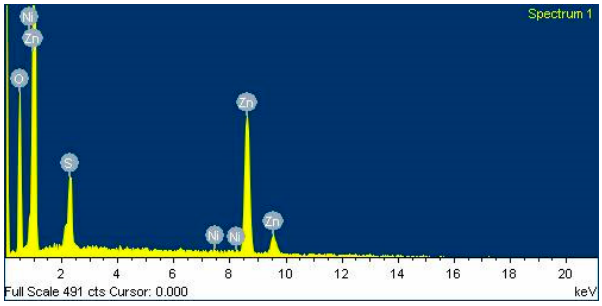




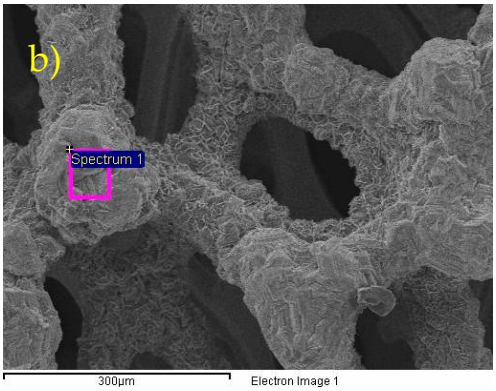
Element	App Conc.
Fe K	0.66
Zn K	55.15

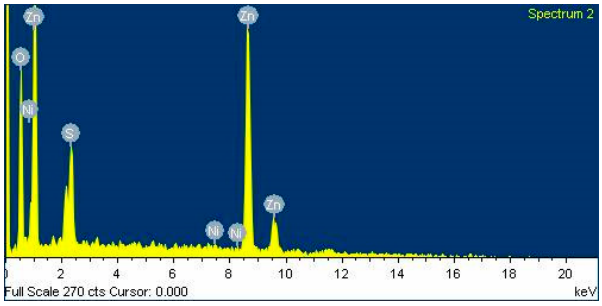
Figure S2. EDX of zinc electrodeposition on IF at potential of (**a**) −1.60 V vs. Hg/HgO, (**b**) −1.55 V vs. Hg/HgO, (**c**) −1.50 V vs. Hg/HgO and (**d**) −1.45 V vs. Hg/HgO.



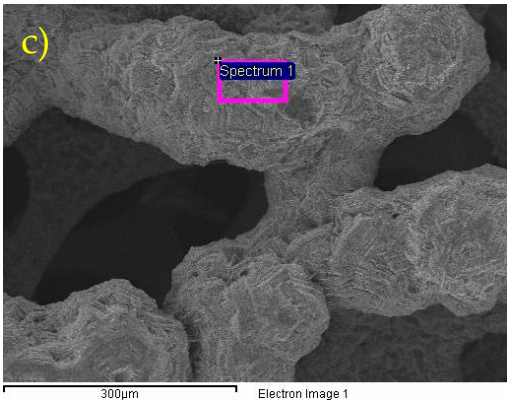


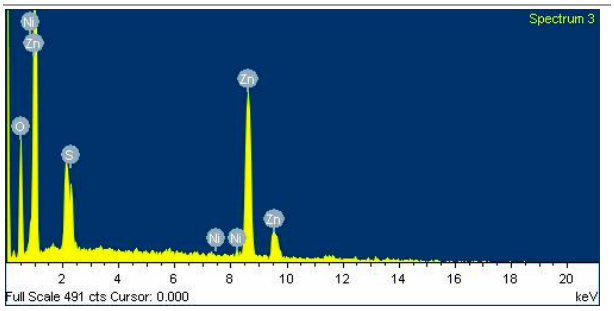
Element	App Conc.
Ni K	0.28
Zn K	59.73



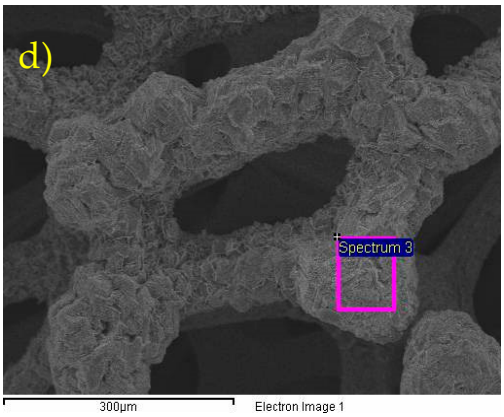


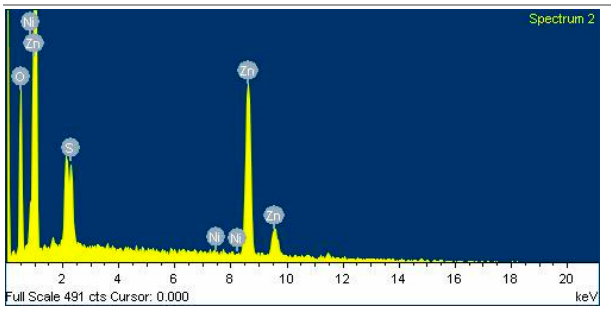
Element	App Conc.
Ni K	0.4
Zn K	67.47





Element	App Conc.
Ni K	0.19
Zn K	83.49





Element	App Conc.
Ni K	0.65
Zn K	84.24

Figure S3. EDX of zinc electrodeposition on NF at potential of (**a**) −1.60 V vs. Hg/HgO, (**b**) −1.55 V vs. Hg/HgO, (**c**) −1.50 V vs. Hg/HgO and (**d**) −1.45 V vs. Hg/HgO.

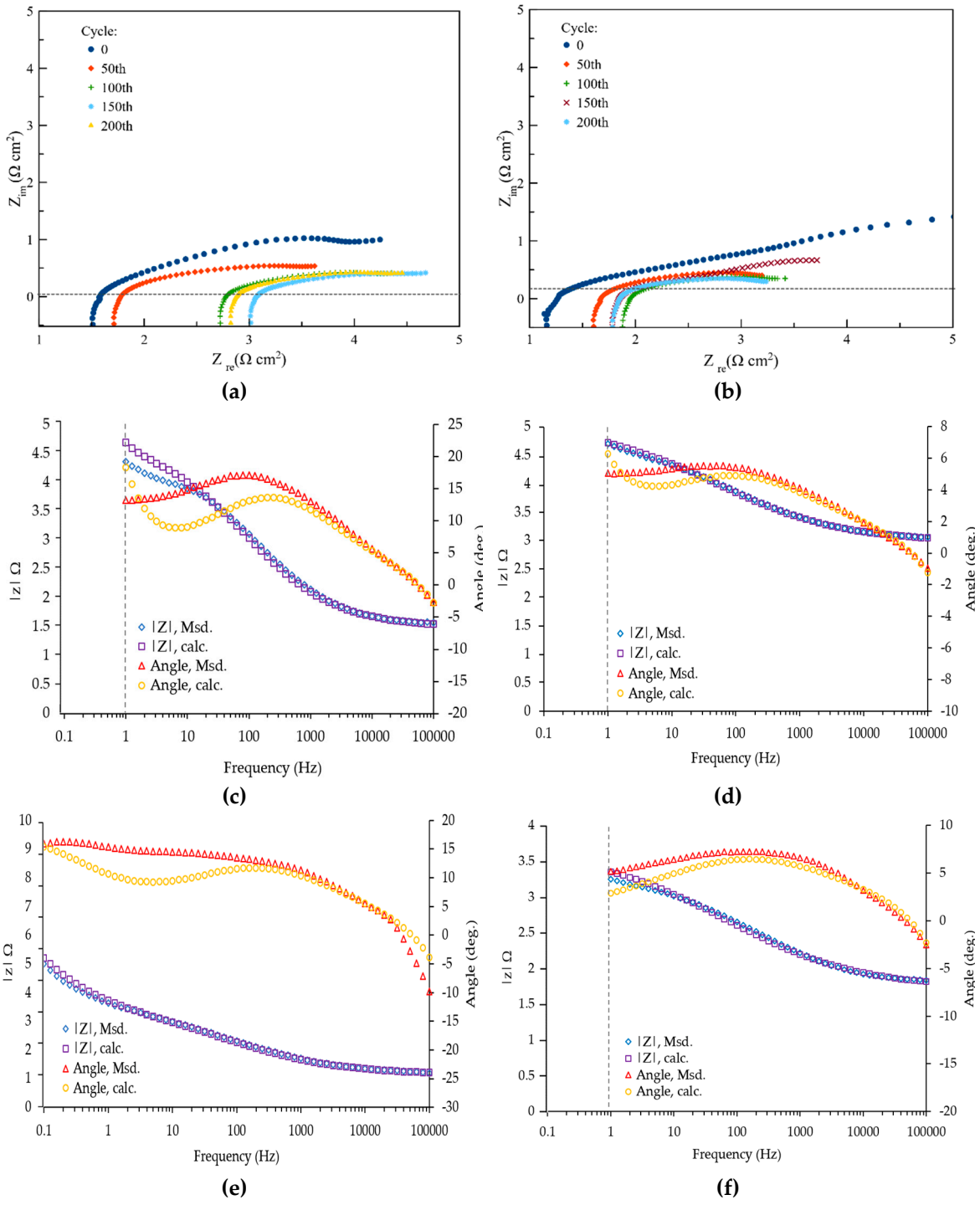


Figure S4. Evolution of cell impedance at initial stage and after 50th, 100th, 150th and 200th charge-discharge cycle: (**a**) Nyquist plots when used Zn/IF, (**b**) Nyquist plots when used Zn/NF, (**c**) Bode diagram when used Zn/IF at initial state (t = 0), (**d**) Bode diagram when used Zn/IF at 200th cycle, (**e**) Bode diagram when used Zn/NF at initial state (t = 0), (**f**) Bode diagram when used Zn/NF at 200th cycle at a frequency range from 100 kHz to 0.1 Hz with an alternate current amplitude of 10 mV around OCV.