

[Zn(Salen)] metal complex-derived ZnO-implanted Carbon Slabs as Anode Material for Lithium-ion and Sodium-ion Batteries

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Supporting Information

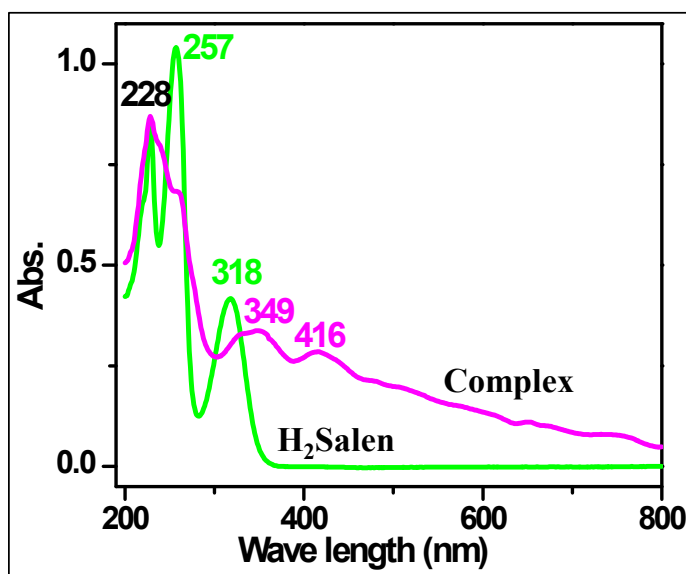


Fig. S1. UV profile recorded for the salen ligand and Zinc salen complex.

The addition of Zn precursor to the salen results in the formation of coordination. The coordination by –OH group followed by nitrogen atom from salen hinder the further growth of crystal resulting in formation nuclei process. Further, the structural formation of [Zn(salen)] complex is

evidenced through the UV-visible absorption spectra presented in Figure S1. The UV-visible absorption spectrum of salen presented in Figure S1 shows two absorption band at 228 and 318 nm. Besides, the absorption spectrum of [Zn(salen)] complex shows appearance of a new bands at 416 nm along with a red shifted band at 349 compared to spectrum of Salen. The formation of low energy absorption for [Zn(salen)] is due to the charge transfer transition between metal to ligand, which in turn confirms the formation of Zn complex.

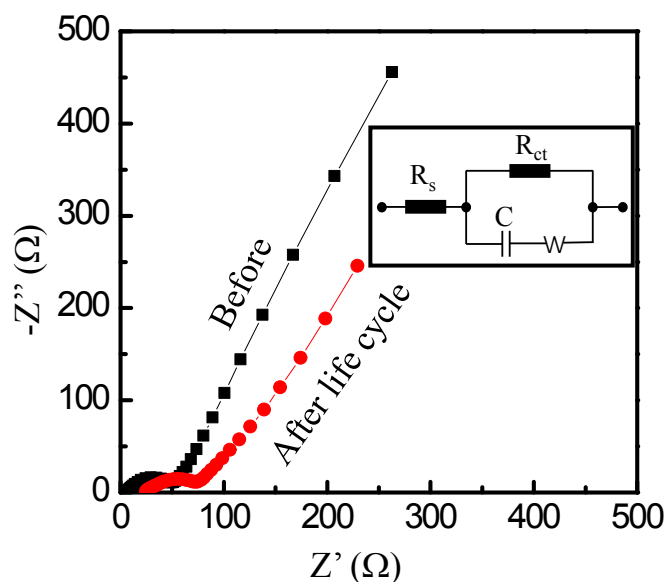


Fig. S2. Nyquist plots recorded before and after cycle life for the CR-2032 half cell containing ZnO@CS anode and Li counter electrode. Inset: Equivalent circuit used for fitting.

Table S1: The fit values obtained from the Nyquist plots recorded before and after cycle life test for the CR 2032 coin cell containing ZnO@CS anode and Lithium counter electrode.

Electrode	R_s (Ω)	R_{ct} (Ω)	C (F)	W (s)
Before cycle life	6.57	32.82	55×10^{-6}	131.5
After cycle life	24.71	42.43	0.145×10^{-3}	104.4

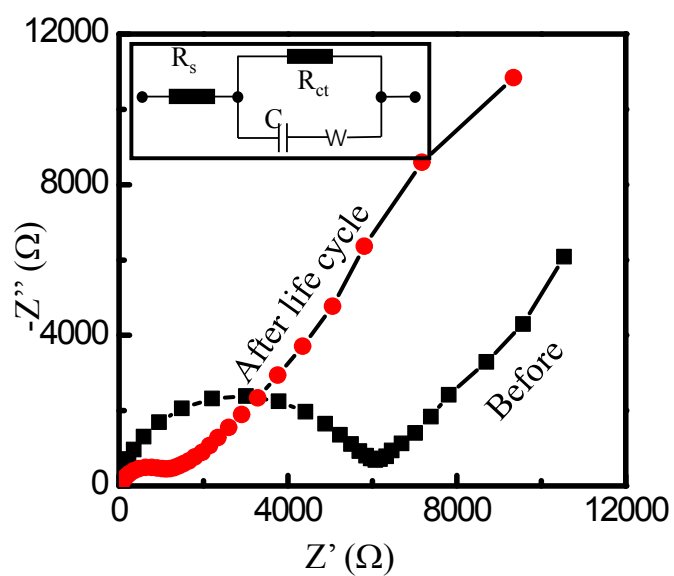


Fig. S3. Nyquist plots recorded before and after cycle life for the CR-2032 half cell containing ZnO@CS anode and Na counter electrode. Inset: Equivalent circuit used for fitting and table consists of fitting values.

Table S2: The fit values obtained from the Nyquist plots recorded before and after cycle life test for the CR 2032 coin cell containing ZnO@CS anode and Sodium counter electrode.

Electrode	R_s (Ω)	R_{ct} (Ω)	C (F)	W (s)
Before cycle life	16.62	5.46	2.73×10^{-6}	1130
After cycle life	15.1	1172	8×10^{-3}	1975