Supporting Information

Co Nanoparticles Combined with Nitrogen-Doped Graphitic Carbon Anchored in Carbon Fibers as a Self-standing Air Electrode for Flexible Zinc-Air Batteries

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The potentials (vs. Ag/AgCl) in this work were converted to RHE by using the Nernst equation[1]:
($E_{RHE} = E_{Ag/AgCl} + 0.197 + 0.059$ pH)

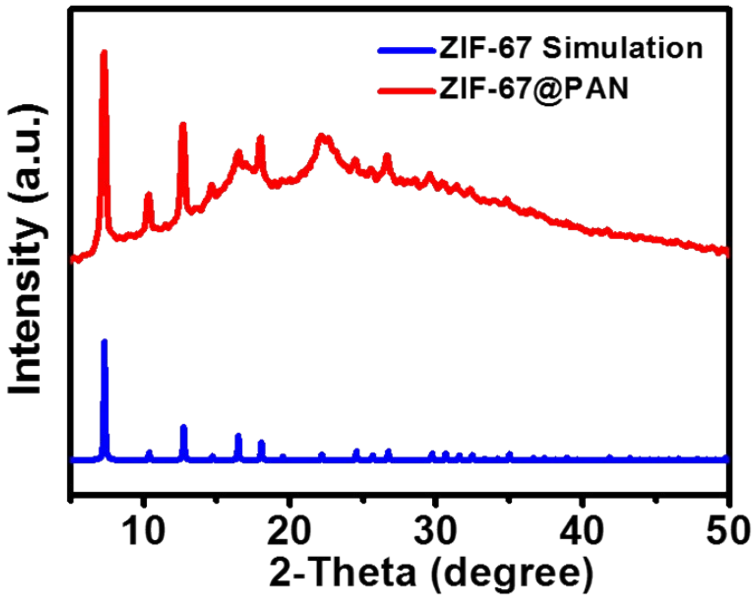

Fig. S1. The XRD pattern of ZIF-67@PAN and ZIF-67 simulation.

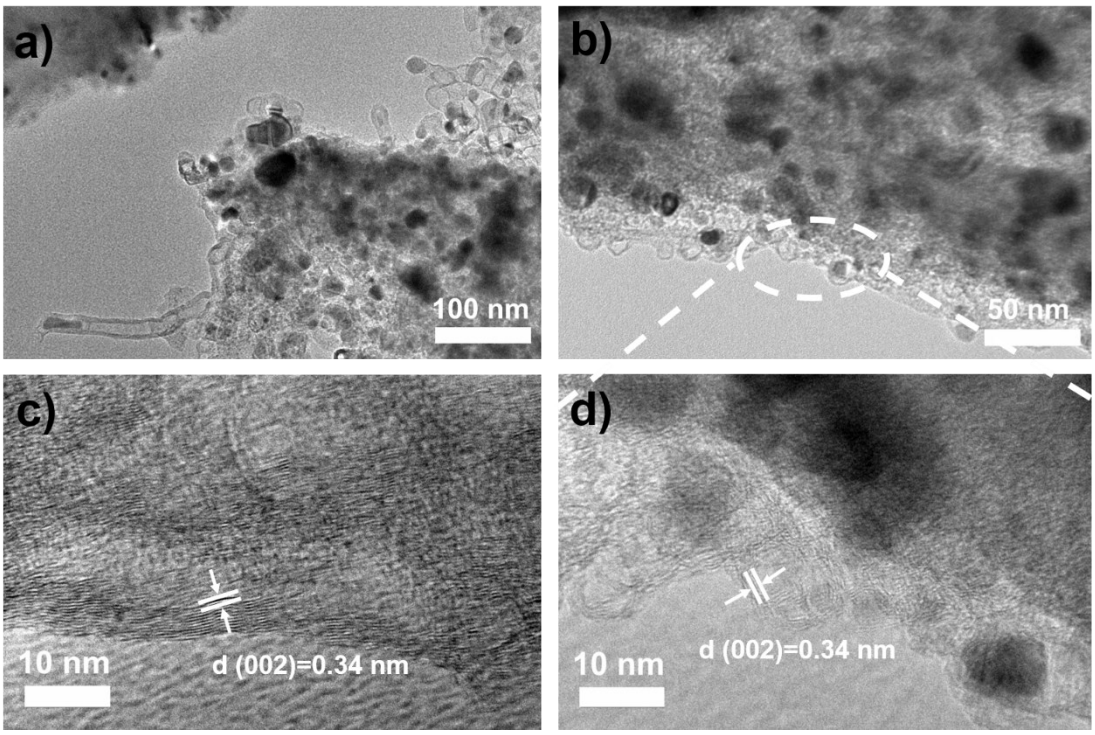

Fig. S2. (a-b) TEM images and (c-d) HRTEM images of Co@NPCFs

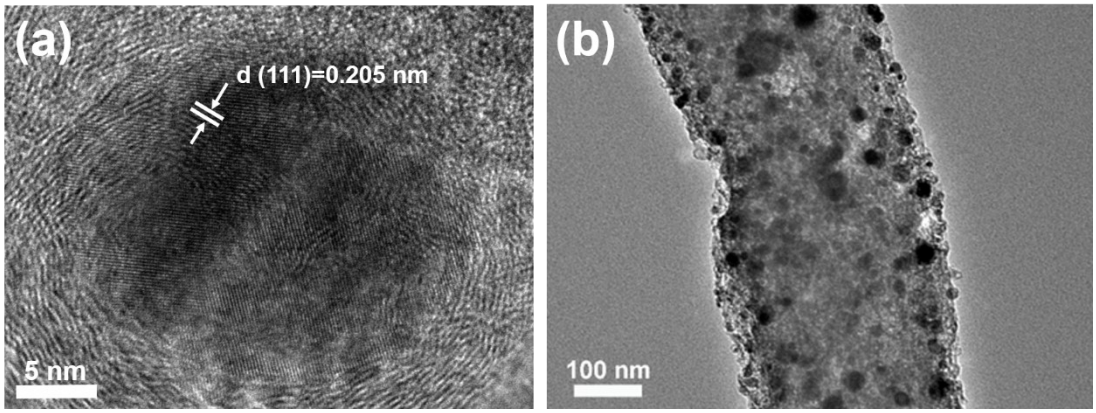

Fig. S3. (a) HRTEM images of Co@NPCFs and (b) TEM image of Co@NCFs.

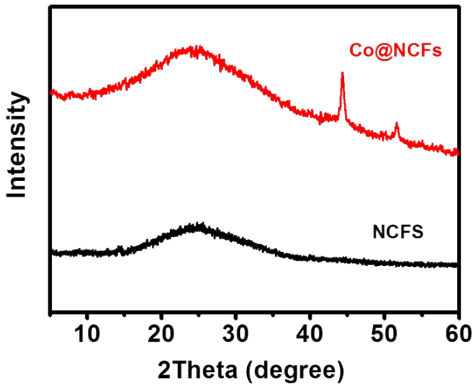

Fig. S4. XRD patterns of NCFs and Co@NCFs.

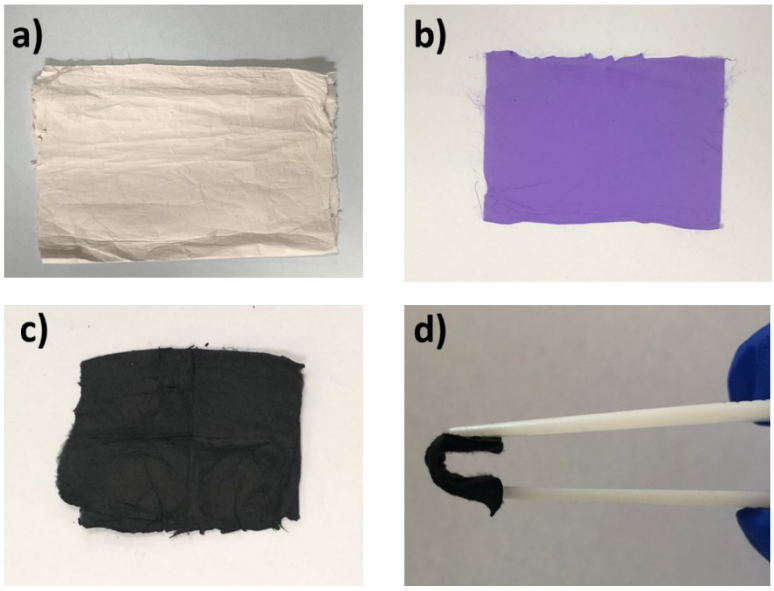

Fig. S5. The photographs of (a) $Co(AC)_2$/PAN (b) ZIF-67@PAN (c-d) Co@NPCFs.

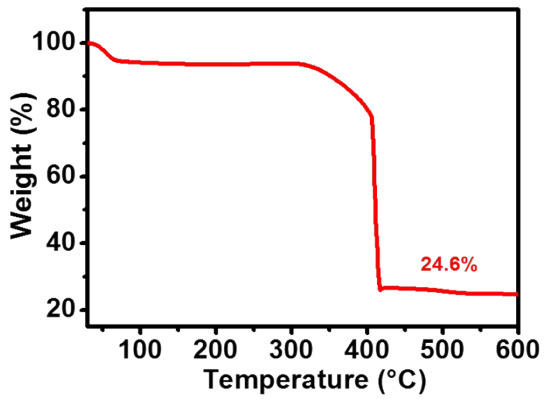

Fig. S6. TGA data of the Co@NPCFs.

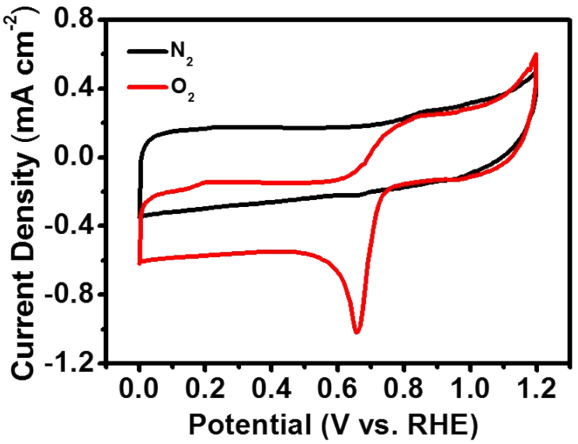

Fig. S7. CV curves of Co@NPCFs in O_2- and N_2- saturated 0.1 M KOH solution.

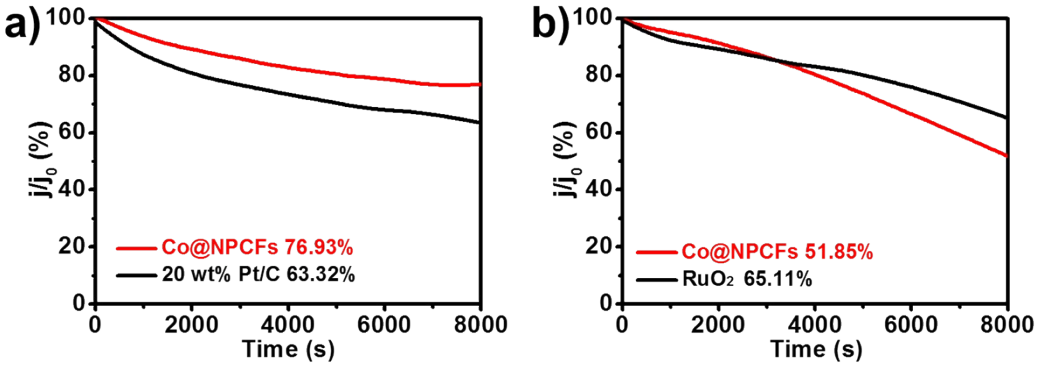

Fig. S8. (a) ORR and (b) OER chronoampermetric responses of Co@NPCFs at a constant potential of 0.7 V and 1.6 V, respectively.

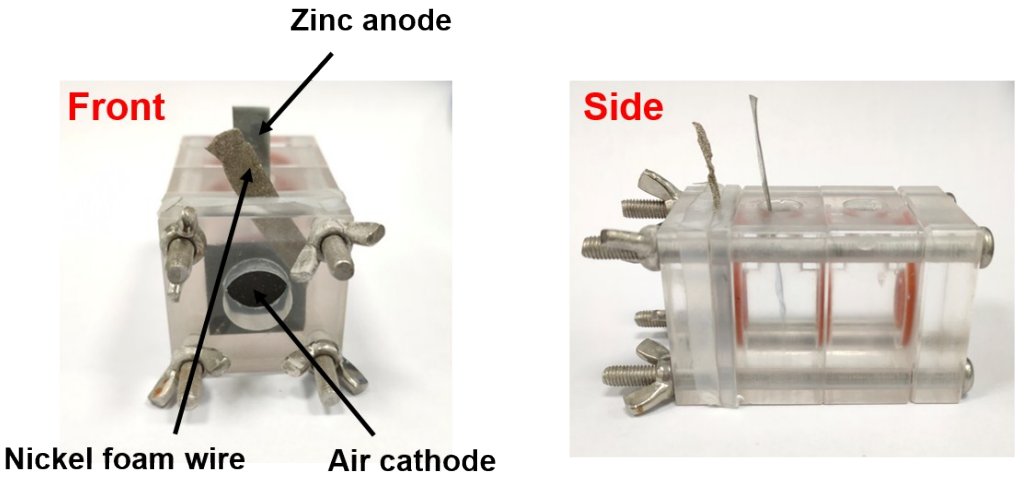

Fig. S9. The photographs of liquid-state ZABs mould.

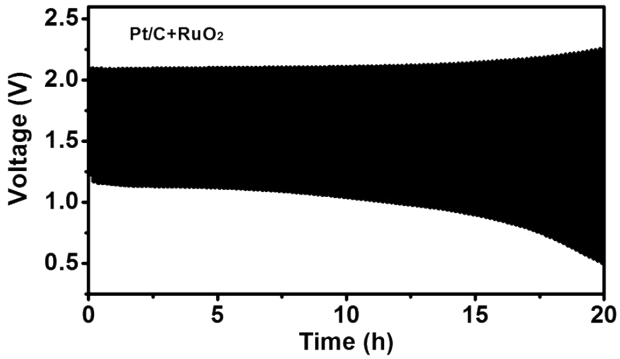

Fig. S10. Galvanostatic cycling stability of the liquid-state ZAB based upon Pt/C+RuO_2 at 5 mA cm^{-2}.

Table 1

Catalyst	ΔE (V)	Power density (mW cm^{-2})	Discharge stability (liquid state)	Discharge stability (solid state)	Ref

Co@NPCFs	**0.97**	**91.87**	**80 h at 5 mA cm^{-2}**	**5 h at 3 mA cm^{-2}**	**Present work**
NCNF-1000	**1.02**	**185**	**83 h at 10 mA cm^{-2}**	**6 h at 2 mA cm^{-2}**	**[2]**
$Co_3FeS_{1.5}(OH)_6$	**0.87**	**113.1**	**36 h at 2 mA cm^{-2}**	**-**	**[3]**
Co_3O_4/N-rGO nanosheets	**0.93**	**-**	**-**	**25 h at 3 mA cm^{-2}**	**[4]**
DN-CP@G	**0.99**	**135**	**250 cycles at 5 mA cm^{-2}**	**180 cycles at 1 mA cm^{-2}**	**[5]**
Ni_3Fe/N-C sheets	**0.84**	**-**	**420 h at 10 mA cm^{-2}**	**-**	**[6]**
PCN–CFP	**0.96**	**-**	**50 h at 20 mA cm^{-2}**	**-**	**[7]**
Fe-N_x-C	**0.92**	**96.4**	**300 h at 5 mA cm^{-2}**	**120 h at 1 mA cm^{-2}**	**[8]**

Reference

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