Supporting Information

One-pot synthesis of nitrogen and phosphorus-dual-doped carbon nanotube array as highly effective electrocatalyst for oxygen reduction reaction

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Additional data:

![SEM images of growing N, P-CNTs at different stages. (a1-a3, initial Ni foam substrate, b1-b3, Ni foam at 850 °C for 1 min, c1-c3, Ni foam at 850 °C for 15 min)](image)

**Fig. S1** SEM images of growing N, P-CNTs at different stages. (a1-a3, initial Ni foam substrate, b1-b3, Ni foam at 850 °C for 1 min, c1-c3, Ni foam at 850 °C for 15 min)
Fig. S2 XRD pattern of the products collected in the second stage (1 min at 850 °C). It confirms the formation of Ni$_2$P.

Fig. S3 SEM (side view) image of the N, P-CNTs.

Fig. S4 (a) CV curves of the N, P-CNTs in N$_2$-saturated and O$_2$-saturated 0.1 mol L$^{-1}$ KOH, and (b-d) CV curves of the Pt/C (b), CNTs (c) and N-CNTs (d) in O$_2$-saturated 0.1 mol L$^{-1}$ KOH with a sweep rate of 50 mV s$^{-1}$. 