Supporting Information for

Electronic Structure Optimization Boosts Pd Nanocrystals for Ethanol Electrooxidation Realized by Te Doping

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Materials and methods

Chemicals: Palladium (II) acetylacetonate ($Pd(acac)_2$, 99%) and telluric (VI) acid (H_6TeO_6, 18 98%) were purchased from Sigma-Aldrich. Polyvinylpyrrolidone (PVP, MW=58000) was purchased from J&K. N, N-dimethylacetamide (DMAC, analytical reagent) and ammonium carbonate ($(NH_4)_2CO_3$, analytical reagent) were purchased from Sinopharm Chemical Reagent Co. Ltd. (Shanghai, China). All the chemicals were used as received without further purification. The deionized water (18 MΩ/cm) used in all experiments was prepared by passing water through an ultra-pure purification system (Aqua Solutions).

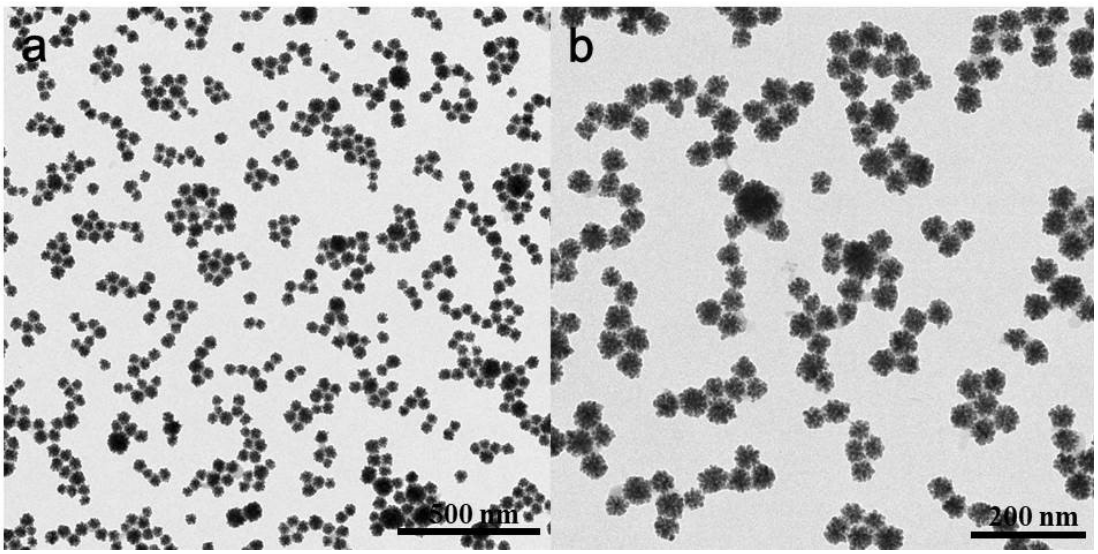

Fig.S1 Representative TEM images of the Pd-Te-2 NCs.

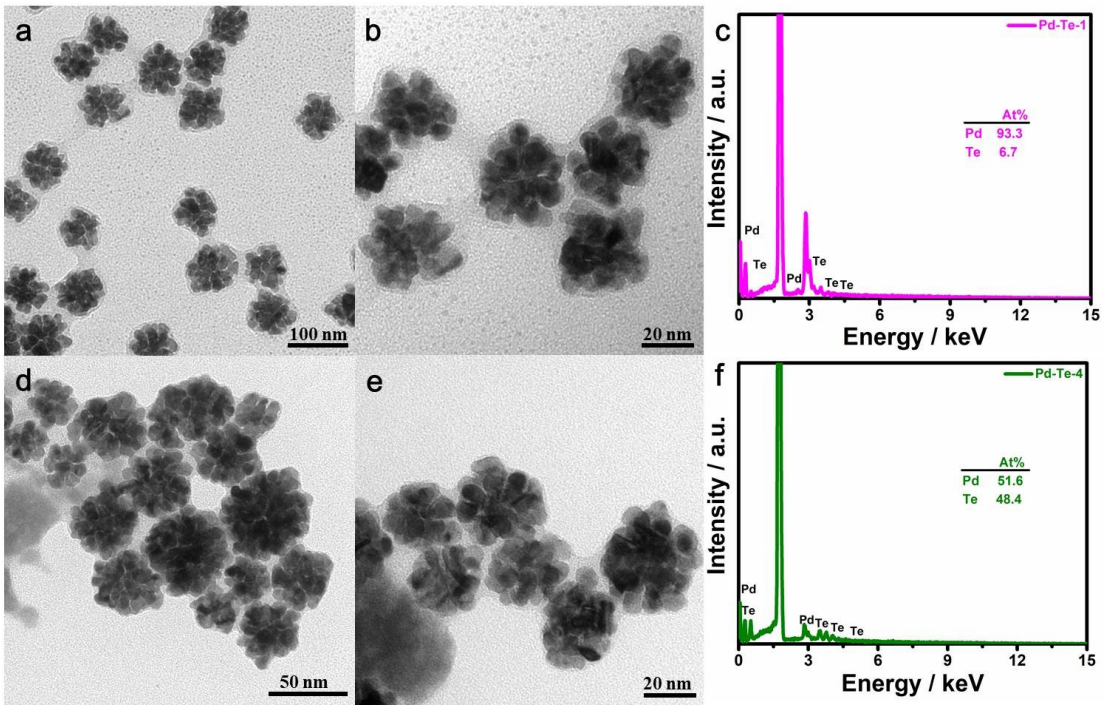

Fig.S2 Representative TEM images of the (a, b) Pd-Te-1 NCs and (d, e) Pd-Te-4 NCs. SEM-EDS spectra of the Pd-Te-1 NCs and Pd-Te-4 NCs.

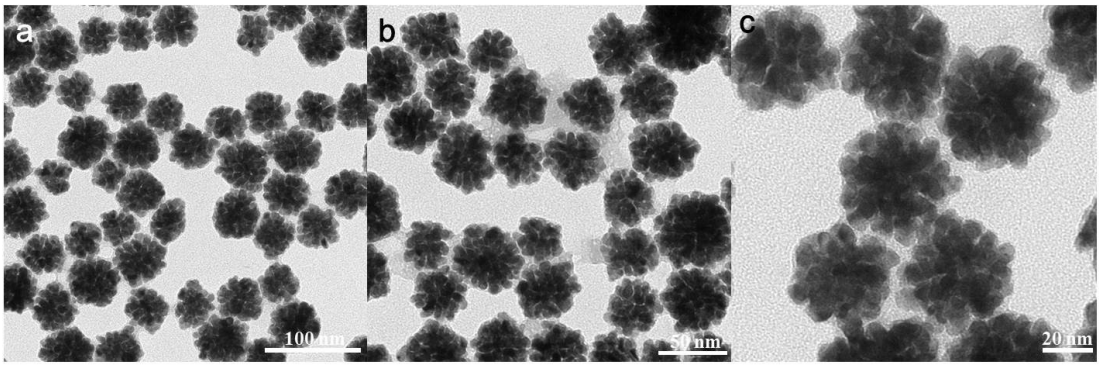

Fig.S3 Representative TEM images of the Pd NCs.

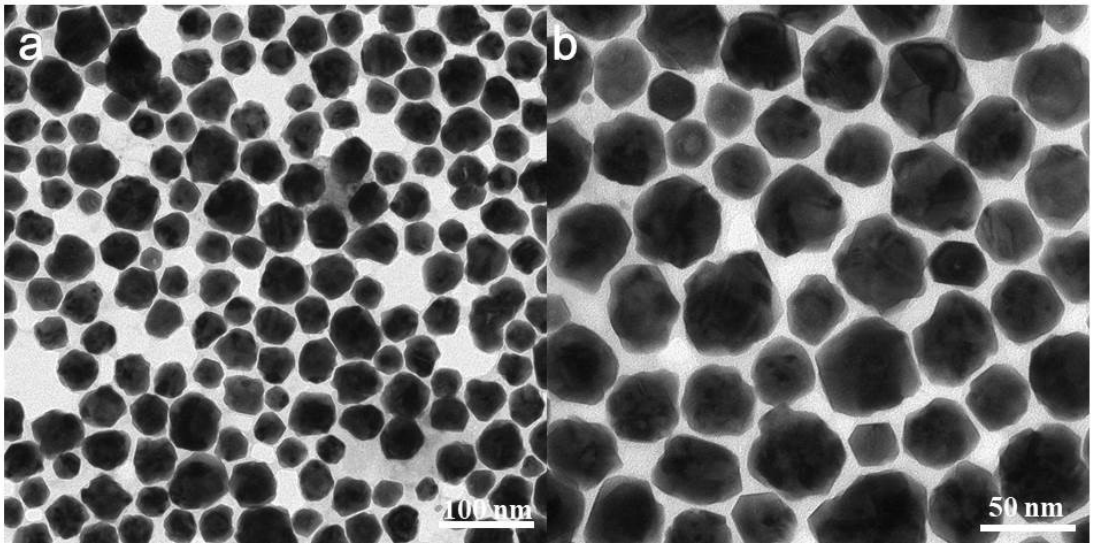

Fig.S4 Representative TEM images of the Pd-Te NCs that obtained except for the addition of $(NH_4)_2CO_3$ while keeping other reaction conditions the same.

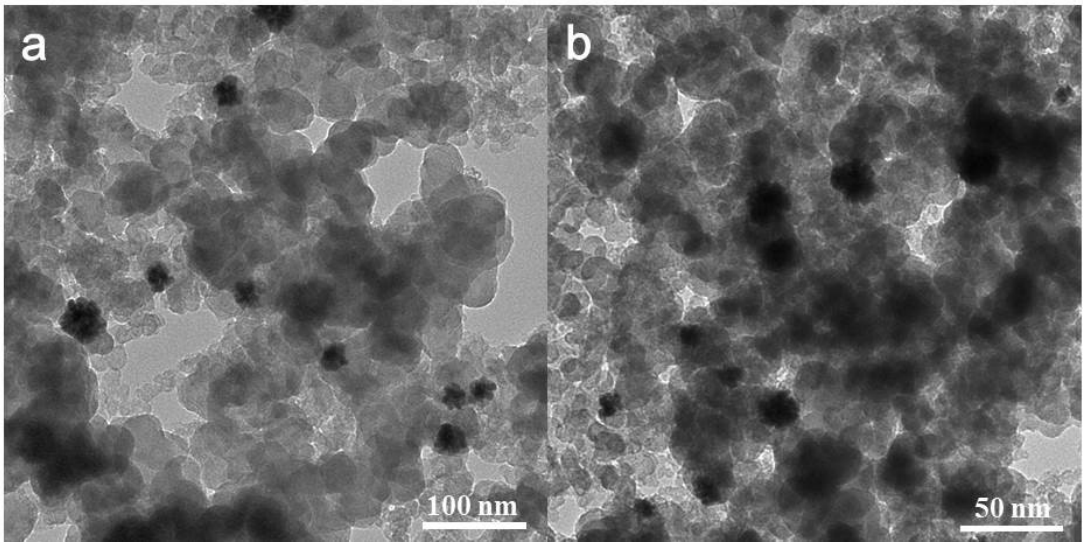

Fig.S5 Representative TEM images of the Pd-Te NCs/C.

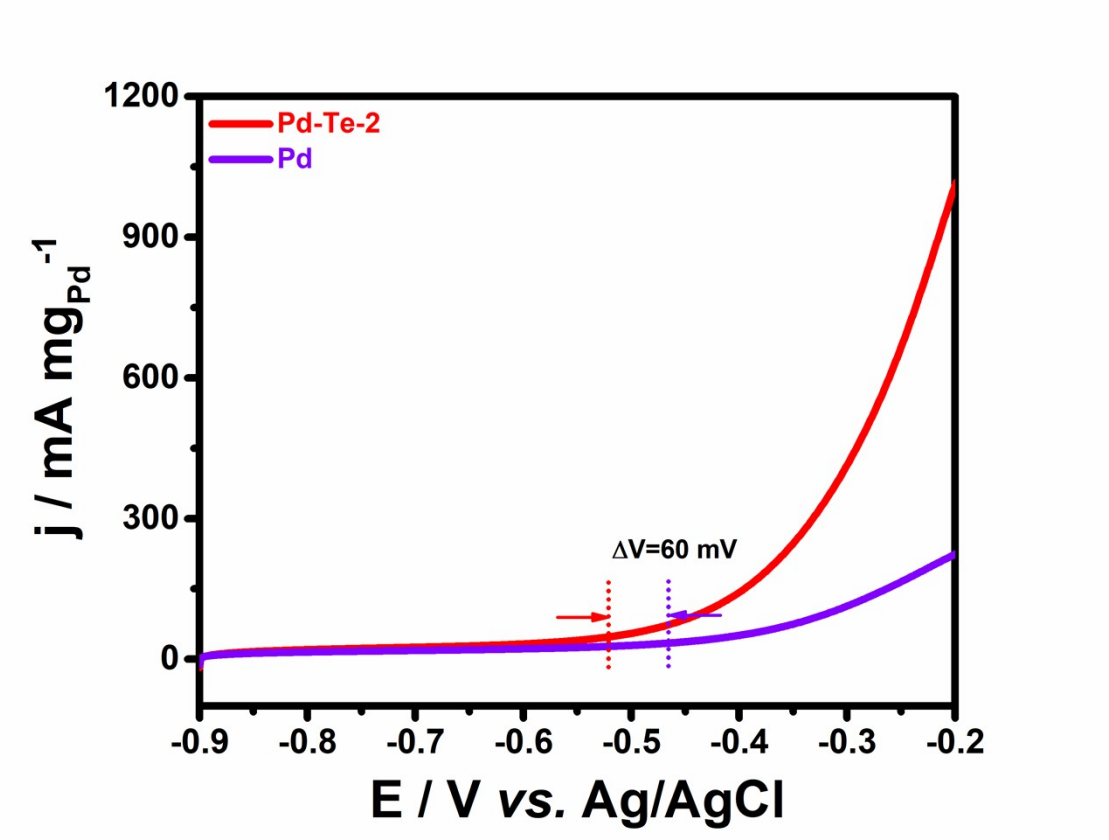

Fig.S6 The recorded onset oxidation potential of Pd-Te-2 NCs and Pd NCs.

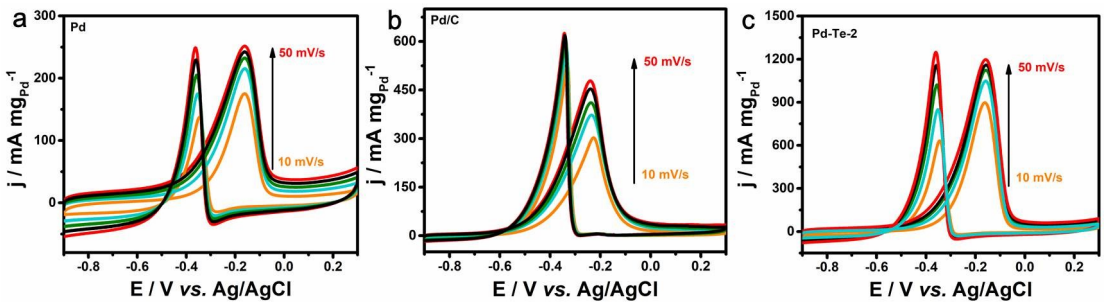

Fig.S7 CV curves of (a) Pd NCs, (b) Pd/C, and (c) Pd-Te-2 NCs for EOR in 1 M KOH + 1 M CH_3CH_2OH solution at different scan rates.

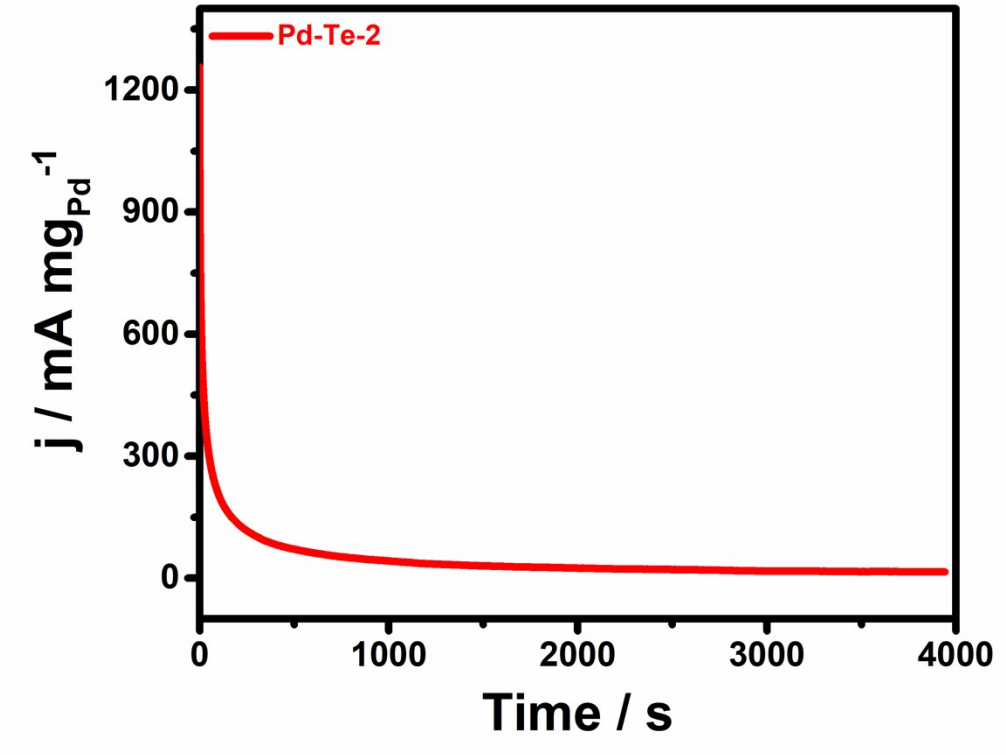

Fig.S8 The i-t test of the Pd-Te-2 NCs at the potential of -0.2 V.

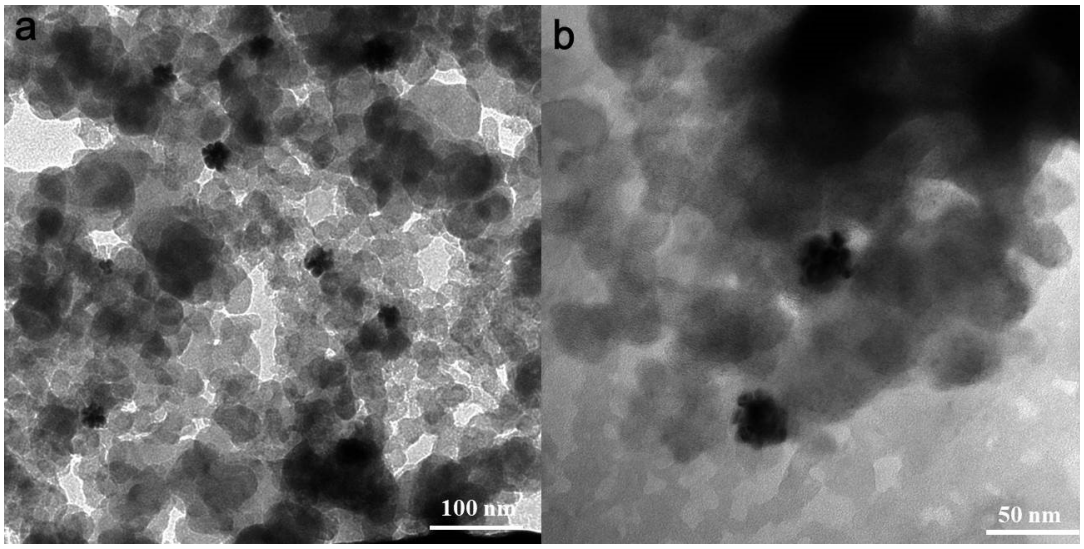

Fig.S9 Representative TEM images of the Pd-Te-2/C after electrochemical tests.

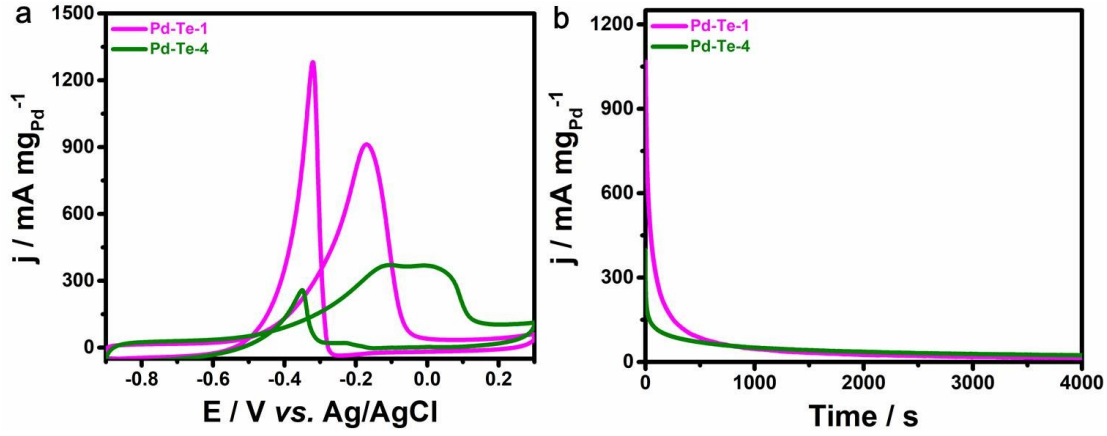

Fig.S10 CV curves of Pd-Te-1 NCs and Pd-Te-4 NCs toward EOR. The i-t curves of Pd-Te-1 NCs and Pd-Te-4 NCs at the potential of 0.2 V