

Supporting Information Available

**Multi-generation overgrowth induced synthesis of three-dimensional highly
branched palladium tetrapods and their electrocatalytic activity for formic acid
oxidation**

Ruopeng Zhao,[†] Gengtao Fu,[†] Tongge Zhou, Yu Chen,* Xiaoshu Zhu, Yawen Tang,*
and Tianhong Lu

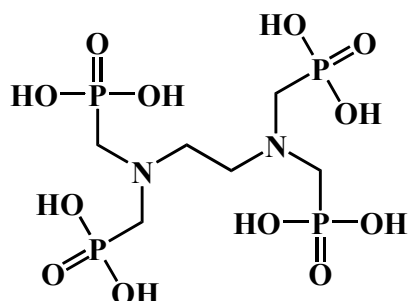
Jiangsu Key Laboratory of New Power Batteries, Jiangsu Collaborative Innovation
Center of Biomedical Functional Materials, College of Chemistry and Materials
Science, Nanjing Normal University, Nanjing 210023, P. R. China

[†] Equal contribution to this work.

*Corresponding authors. Tel: +86–25–85891651; fax: +86–25–83243286.

E-mail address: ndchenyu@gmail.com; tangyawen@njnu.edu.cn (Y. Tang)

Experimental data



Scheme S1. Structure of ethylenediamine-tetramethylene phosphonic acid (EDTMP).

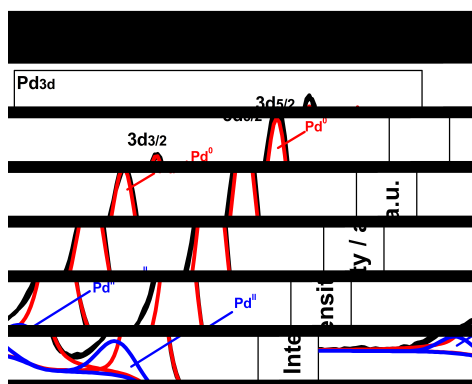


Figure S1. XPS spectrum of the Pd-THBTs.

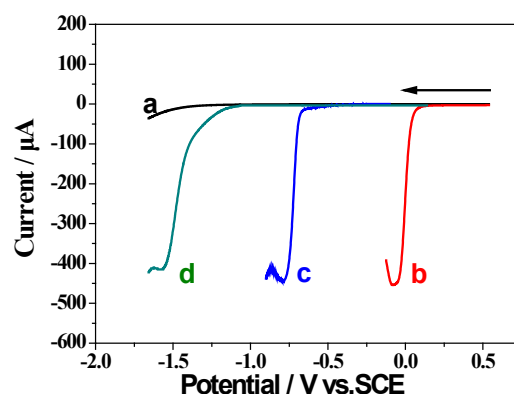


Figure S2. Linear sweeping voltammograms of (a) 0.1 M NaCl (pH=3.0), (b) 0.0167 M PdCl₂ + 0.1 M NaCl (pH=3.0), (c) 0.0167 M EDTMP-Pd^{II} complex + 0.1 M NaCl (pH=3.0) and (d) 0.0167 M EDTMP-Pd^{II} complex + 0.1 M NaCl (pH=7.0) at the glassy carbon electrode at a scan rate of 100 mVs⁻¹.

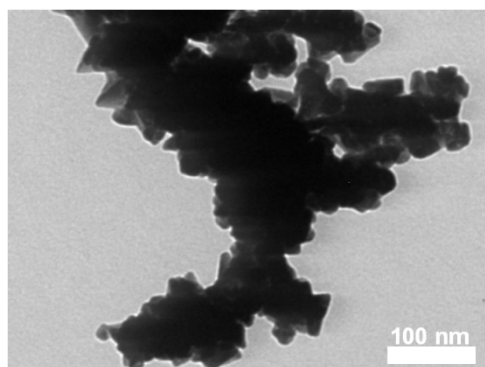


Figure S3. TEM image of the products prepared under the same condition as in Figure 1 except the exclusion of PVP.

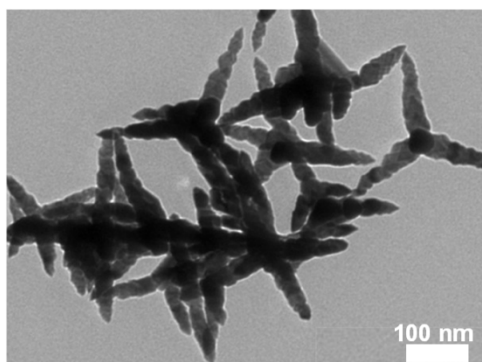


Figure S4. TEM image of the products synthesized in N₂-saturated reaction system.

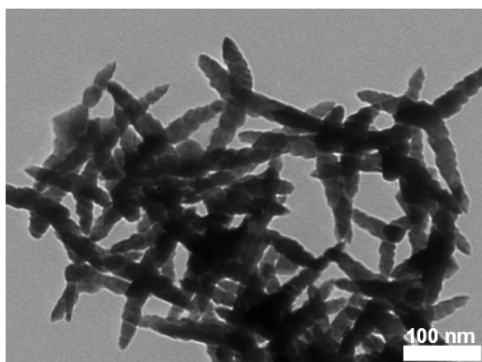


Figure S5. TEM image of the Pd-THBTs sample collected at 24 h.

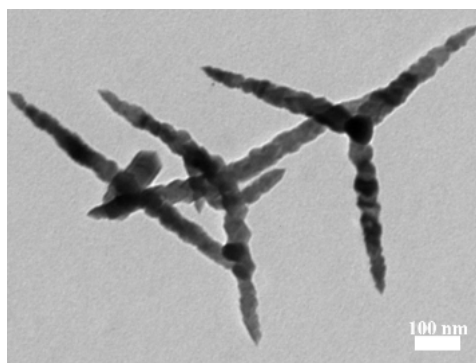


Figure S6. TEM image of the products prepared by increasing the concentrations of Pd^{II} and EDTMP precursors to two times of initial concentrations.

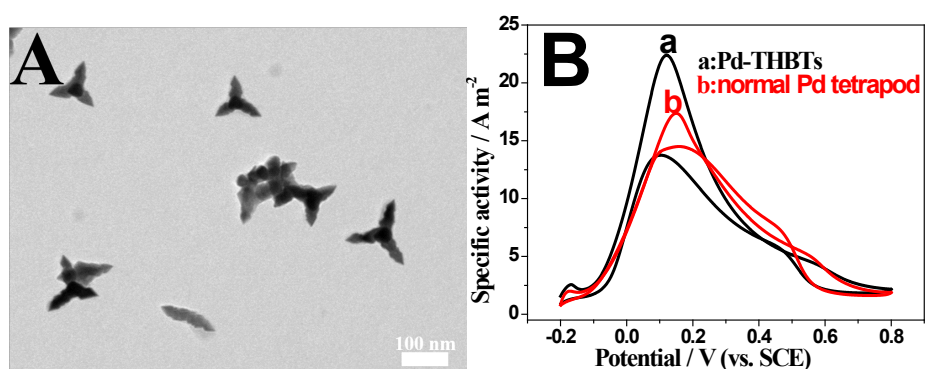


Figure S7. (A) TEM image of the normal Pd tetrapod obtained by decreasing the concentration of Pd^{II} precursor to two thirds of initial concentration. (B) Specific activities of (a) the Pd-THBTs (b) normal Pd tetrapod in 0.5 M HCOOH + 0.5 M H_2SO_4 solution at the scan rate of 50 mV s^{-1} .