

## Supporting Information

### **Sn regulates the electronic structure and metal particles of Pd to improve the hydrogenation performance of 4-nitrophenol**

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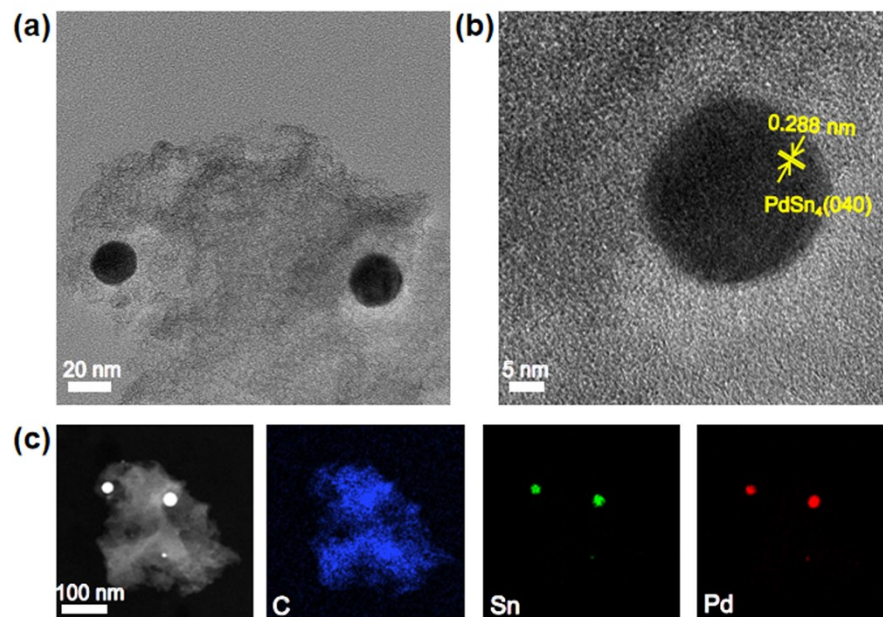


Fig. S1 (a, b) The HR-TEM and (c) TEM Elemental mapping image of PdSn<sub>4</sub>/C

Table S1. XPS analysis for PdSn/C, PdSn<sub>2</sub>/C, PdSn<sub>4</sub>/C and used-PdSn<sub>4</sub>/C catalysts.

Samples	Pd (at %)	Sn (at %)
PdSn/C	0.64	0.54
PdSn <sub>2</sub> /C	0.60	1.10
PdSn <sub>4</sub> /C	0.58	2.08
used-PdSn <sub>4</sub> /C	0.56	2.05

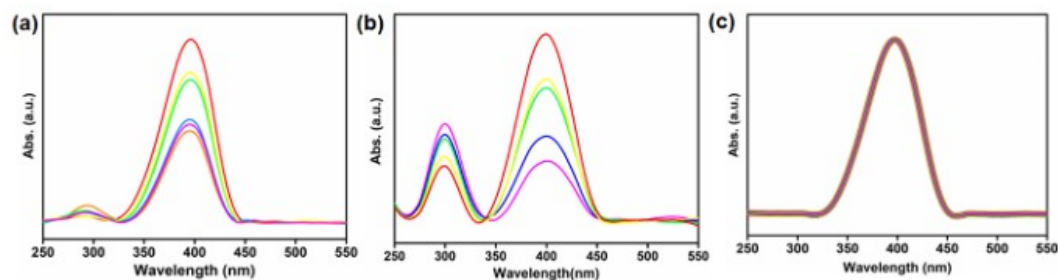


Fig. S2 Ultraviolet visible absorption diagram of p-nitrophenol catalytic hydrogenation reaction of (a) Sn/C, (b) PdSn<sub>6</sub>/C and (c) without catalyst.

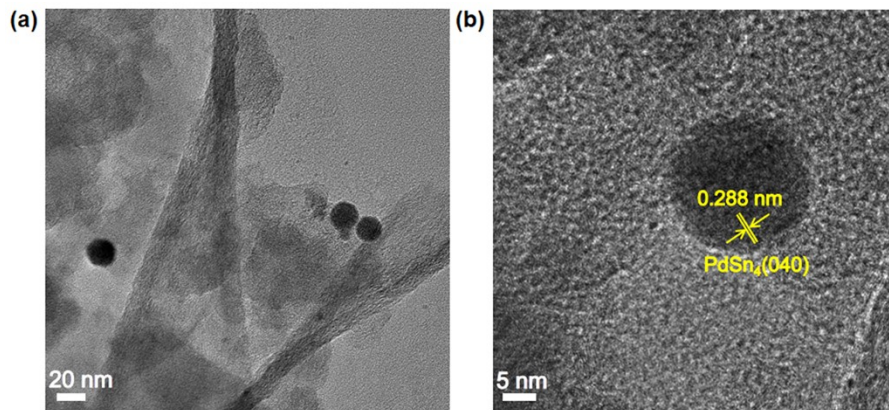


Fig. S3 (a, b)The HR-TEM image of used PdSn<sub>4</sub>/C catalyst for 6 run times