Supporting information for

Trimetallic PtSnRh Wavy Nanowires as Efficient Nanoelectrocatalysts for Alcohol Electrooxidation

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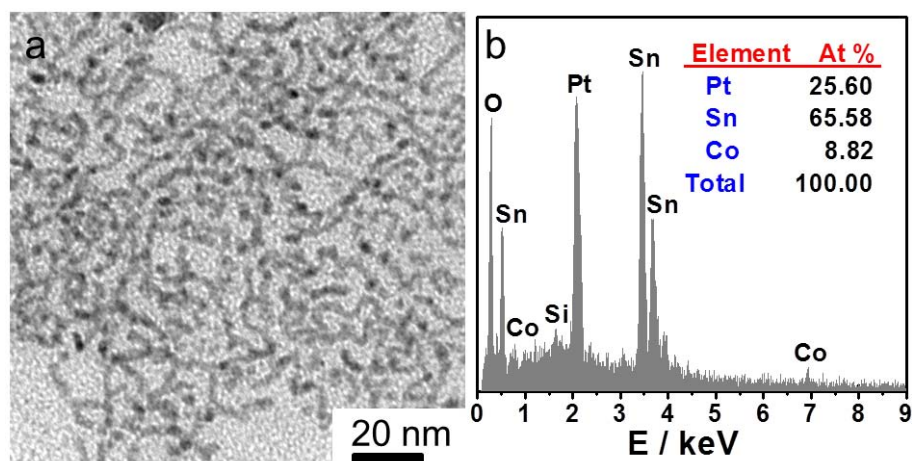[*]Corresponding authors. E-mail: hxq006@suda.edu.cn; shaojun.guo.nano@gmail.com (or sguo@lanl.gov)
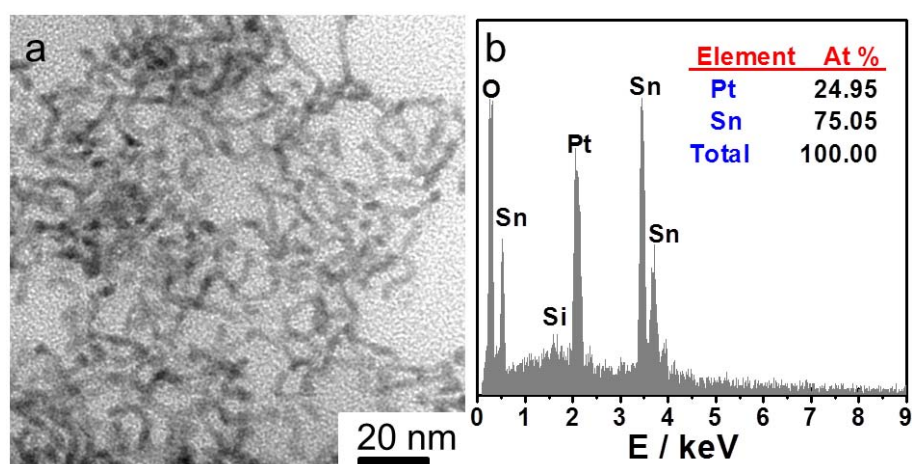
Supplementary Figures and Table
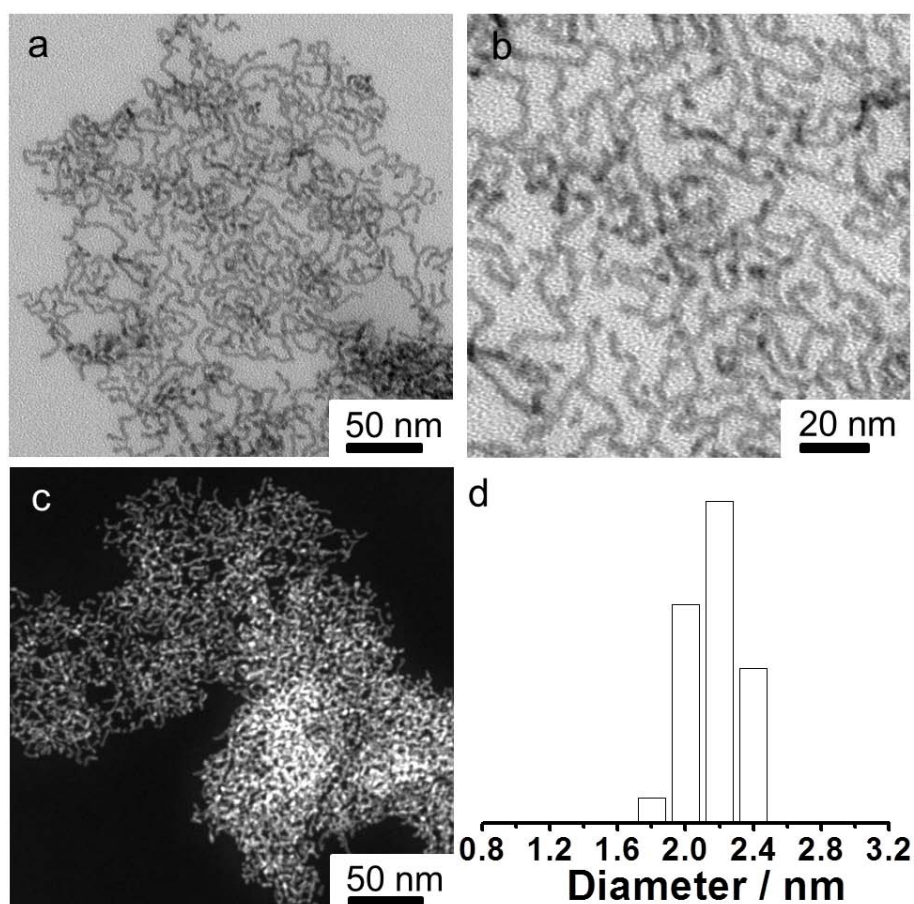
Figure S1. Additional (a) low-magnification TEM, (b) high-magnification TEM, and (c) HAADF-STEM images, (d) diameter histogram of PtSnRh WNWs.
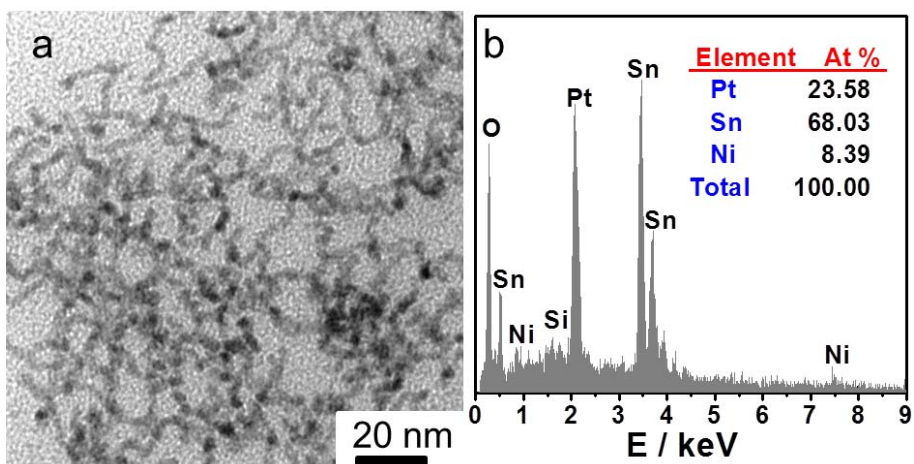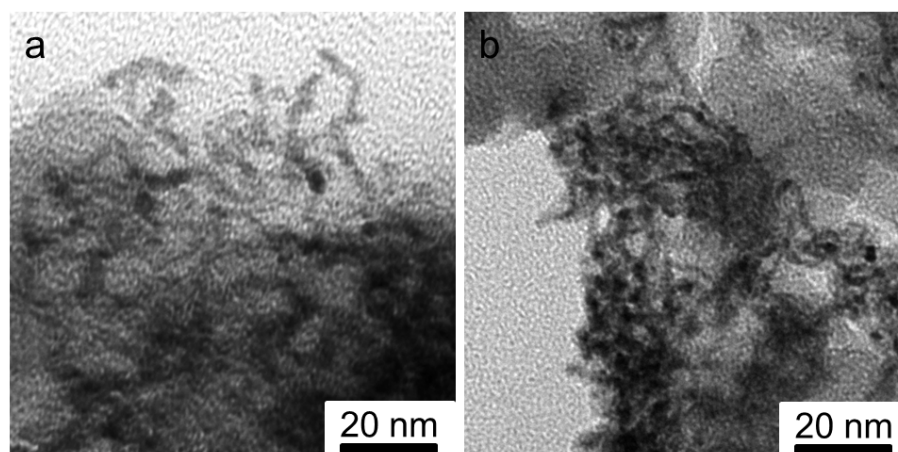

Figure S2. (a) Representative TEM image and (b) EDX pattern of PtSnNi WNWs.
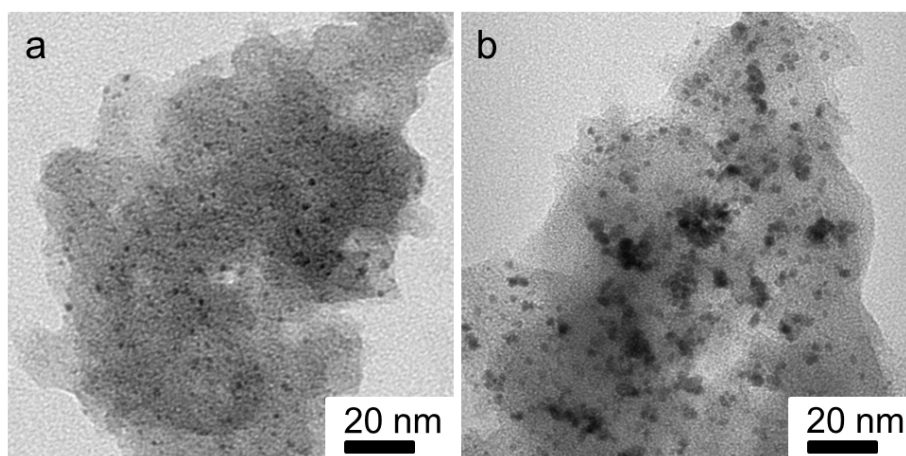
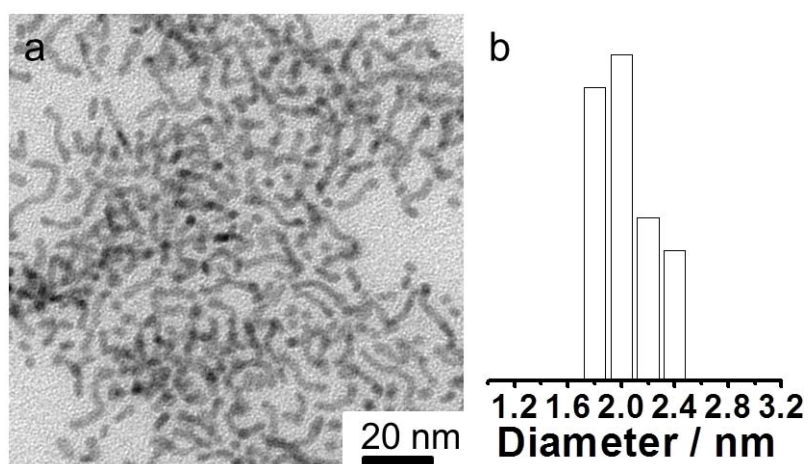**Figure S3.** (a) Representative TEM image and (b) EDX pattern of PtSnCo WNWs.

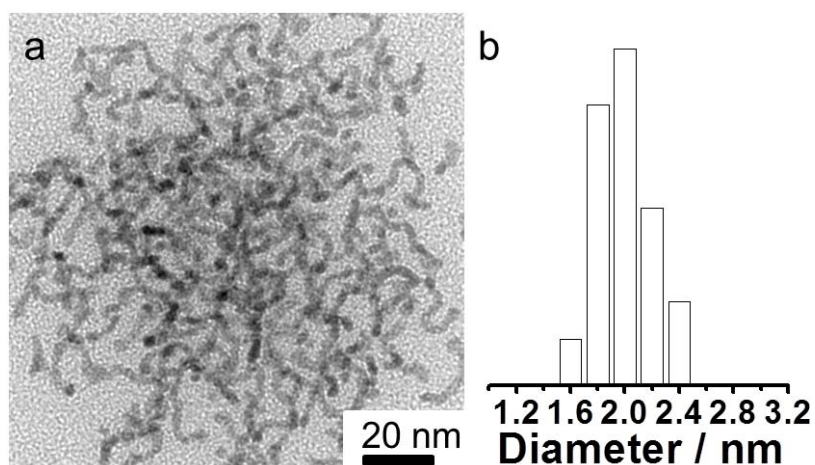**Figure S4.** (a) Representative TEM image and (b) EDX pattern of PtSn WNWs.

Figure S5. Representative TEM images of PtSnRh WNWs on VC-X72 carbon before (a) and after (b) CA measurement.

Figure S6. Representative TEM images of commercial Pt/C catalysts before (a) and after (b) CA measurement.
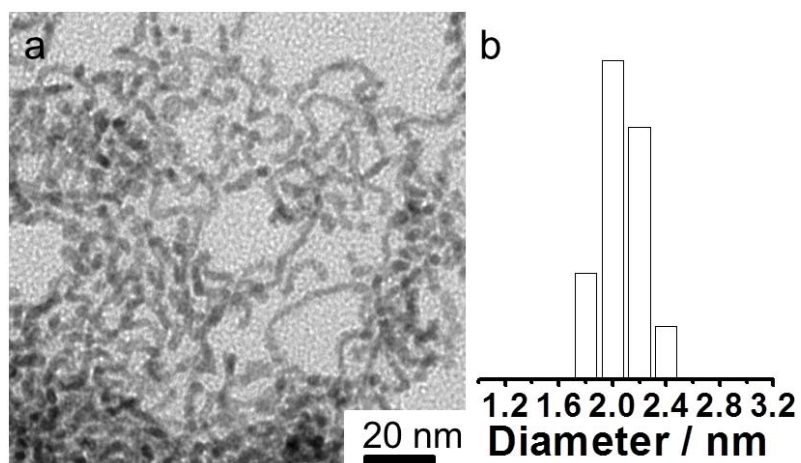

Figure S7. (a) Representative TEM image and (b) diameter histogram of PtSnRh-1 NWs.
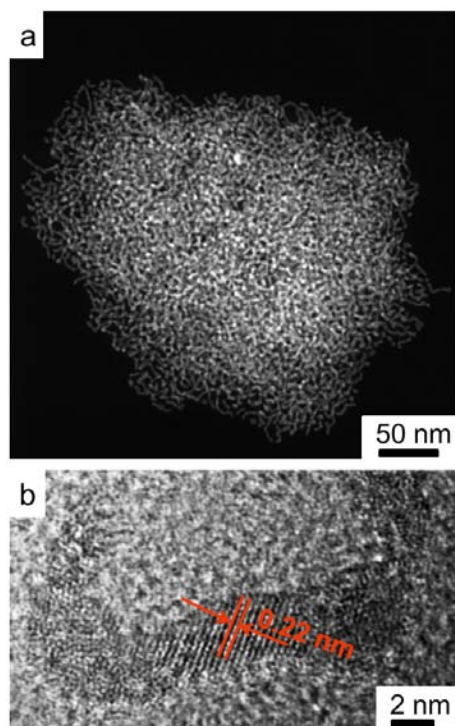

Figure S8. (a) Representative TEM image and (b) diameter histogram of PtSnRh-2 NWs.
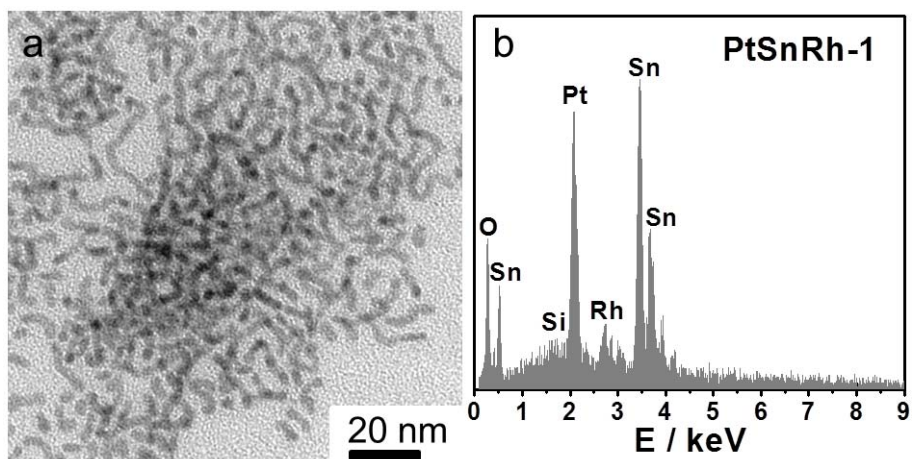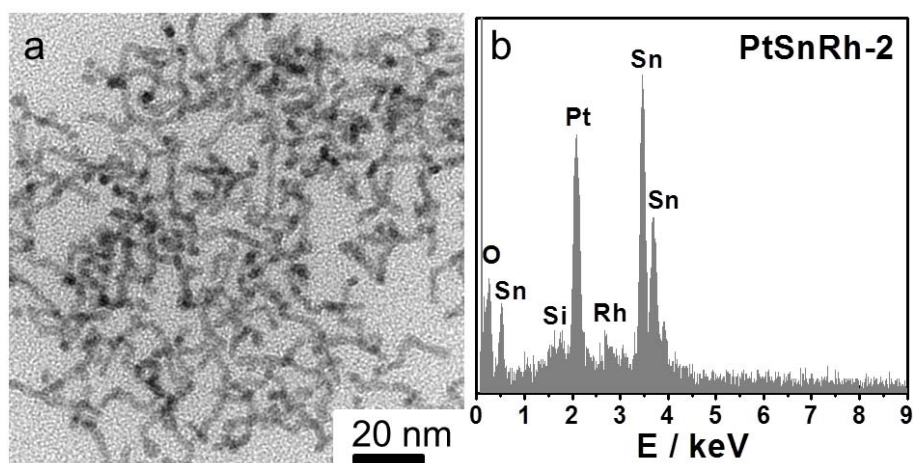
Figure S9. (a) Representative TEM image and (b) diameter histogram of PtSnRh-4 NWs.

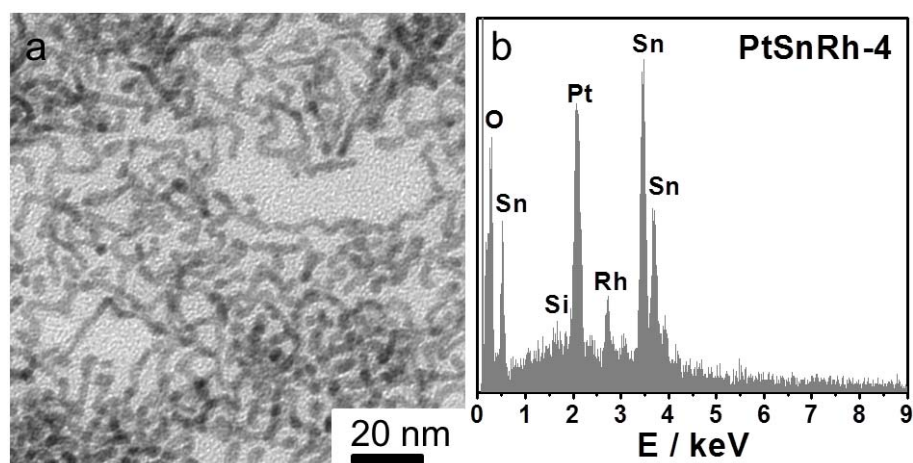**Figure S10.** (a) Additional HAADF-STEM image and (b) HRTEM image of PtSnRh-4 WNWs.
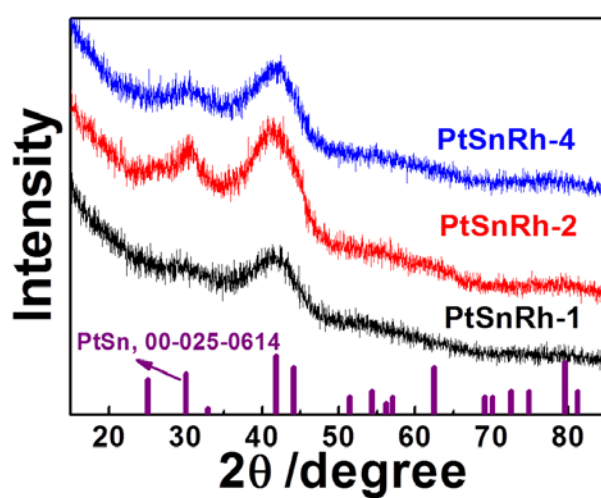

Figure S11. (a) Representative TEM image and (b) EDX pattern of PtSnRh-1 WNWs.

Figure S12. (a) Representative TEM image and (b) EDX pattern of PtSnRh-2 WNWs.

Figure S13. (a) Representative TEM image and (b) EDX pattern of PtSnRh-4 WNWs.

Figure S14. XRD patterns of PtSnRh-1, PtSnRh-2, and PtSnRh-4 WNWs.

	Catalysts	Chemical state of different elements based on XPS						
		Pt /%		Sn /%		M (M=Co, Ni or Rh) /%		Atomic ratio (Pt :Sn : M, metallic states)
		Pt^{x+}	Pt	Sn^{x+}	Sn	M^{x+}	M	
1	PtSn WNWs/C	29	71	88	12	/	/	1:0.7
2	PtSnCo WNW/C	25	75	88	12	25	75	1:0.8:0.3
3	PtSnNi WNWs/C	22	78	80	20	58	42	1:1.3:0.2
4	PtSnRh WNWs/C-1	29	71	87	13	13	87	1:0.6:0.1
5	PtSnRh WNWs/C-2	23	77	82	18	17	83	1:1.2:0.2
6	PtSnRh WNWs/C-3	26	74	93	7	18	82	1:0.5:0.4
7	PtSnRh WNWs/C-4	28	72	86	14	12	88	1:0.9:0.6

Table S1. Composition and chemical state for various wavy nanowires based on the XPS analyses.