Electronic Supplementary Material (ESI) for CrystEngComm.

Dealloying/exsolution-induced nanoporous perovskite oxides anchored with alloy nanoparticles for oxygen evolution reaction

Yu Cui[a], Yang Chao[a], Jianbin Lin[a], Wenxue Ke[a], Xin He[a], Mei Chen[a], Chi Zhang[a,*]

[a] School of Applied Physics and Materials, Wuyi University, 99 Yingbin Road, Jiangmen 529020, China

Corresponding author: Chi Zhang: chizhang@wyu.edu.cn, ch.zhang@outlook.com

1. Supplementary figures:

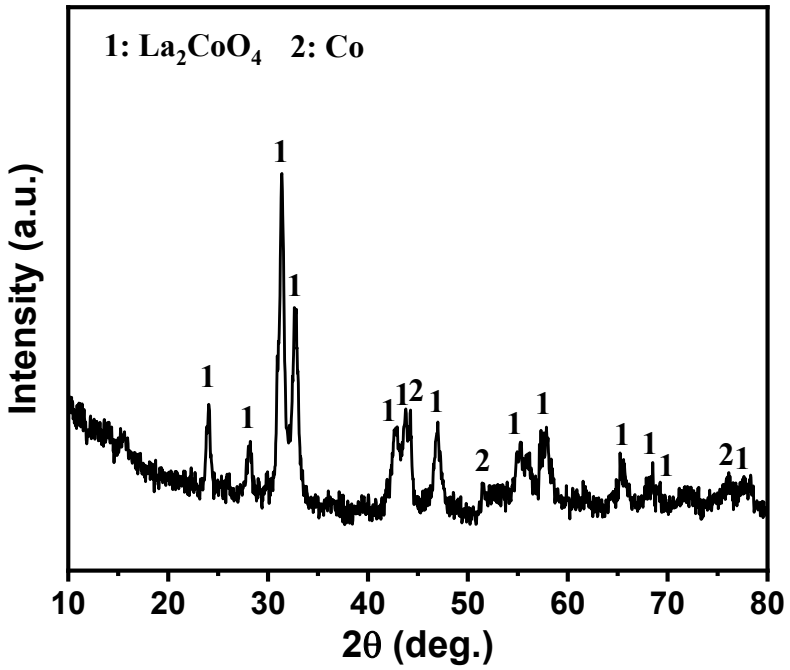

Figure S1. XRD patterns of reduced $LaCoO_3$ in 5% H_2/Ar at 700 °C for 1 h.

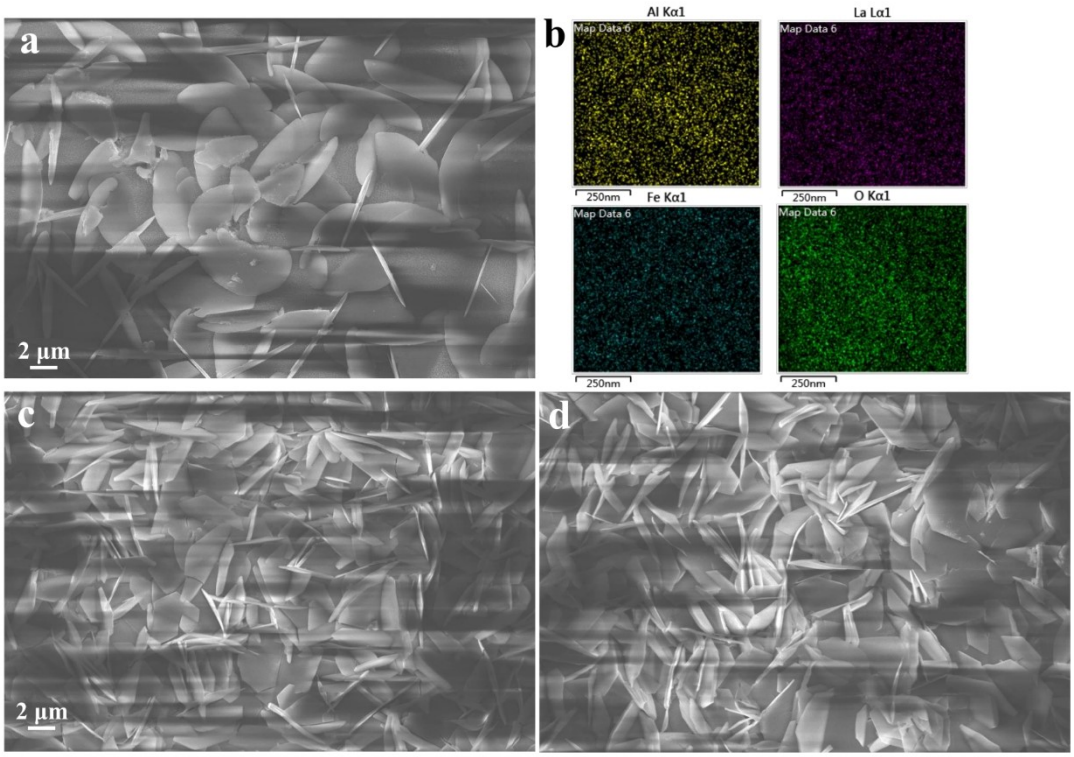

Figure S2: Dealloyed samples of (a) d-$Al_{88.4}La_{5.4}Fe_6$, (b) d-$Al_{88.4}La_{5.4}Co_{0.6}Fe_{5.4}$, and (c) d-$Al_{88.4}La_{5.4}Co_{1.2}Fe_{4.8}$.

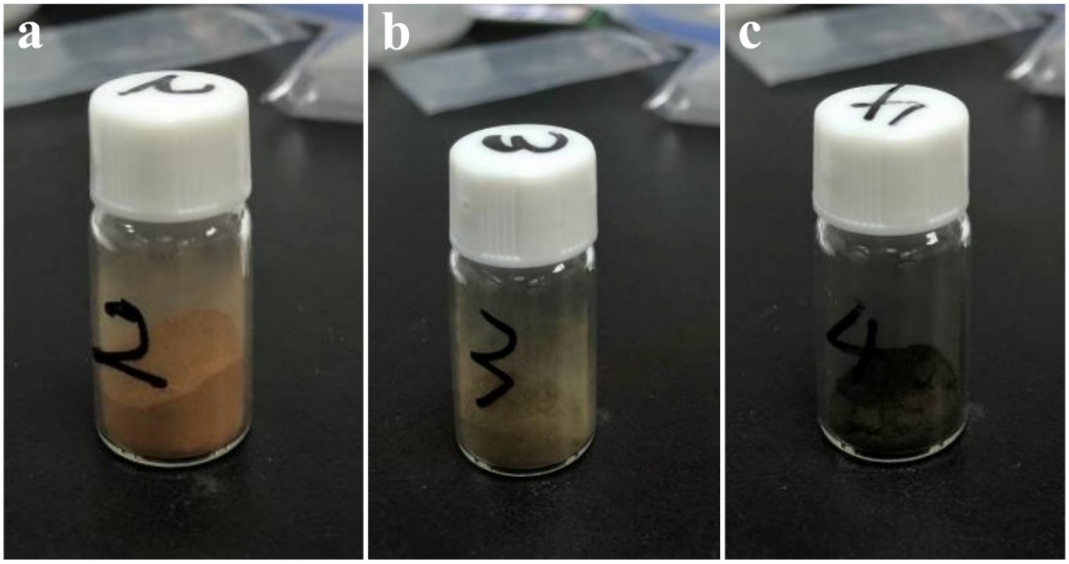

Figure S3. Photo of annealed samples: (a) LF, (b) LCF19, and (c) LCF28.

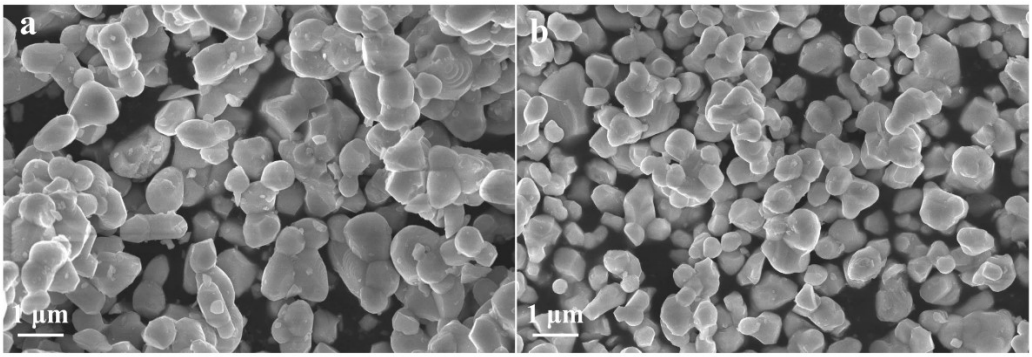

Figure S4. LCF19 synthesized through (a) sol-gel and (b) solid-state reaction method.

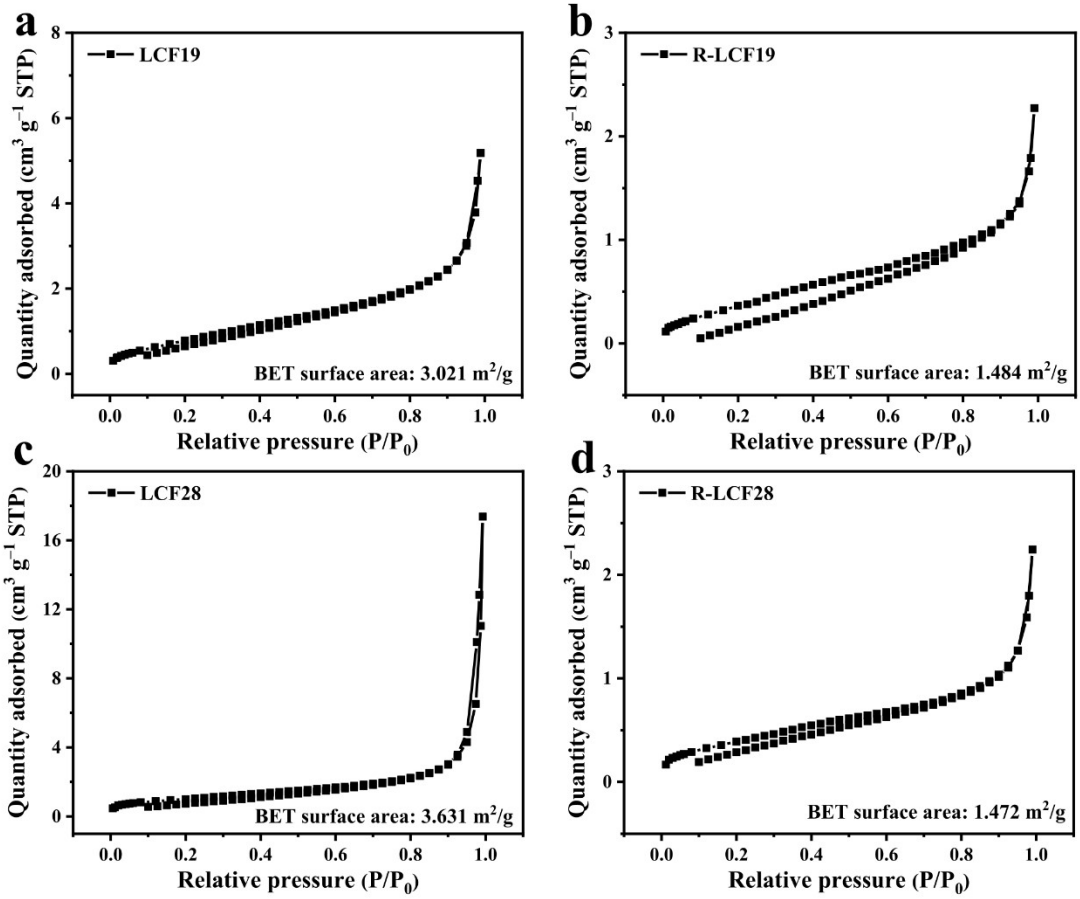

Figure S5. Nitrogen adsorption/desorption isotherms of (a) LCF19, (b) R-LCF19, (c) LCF28, and (d) R-LCF28.

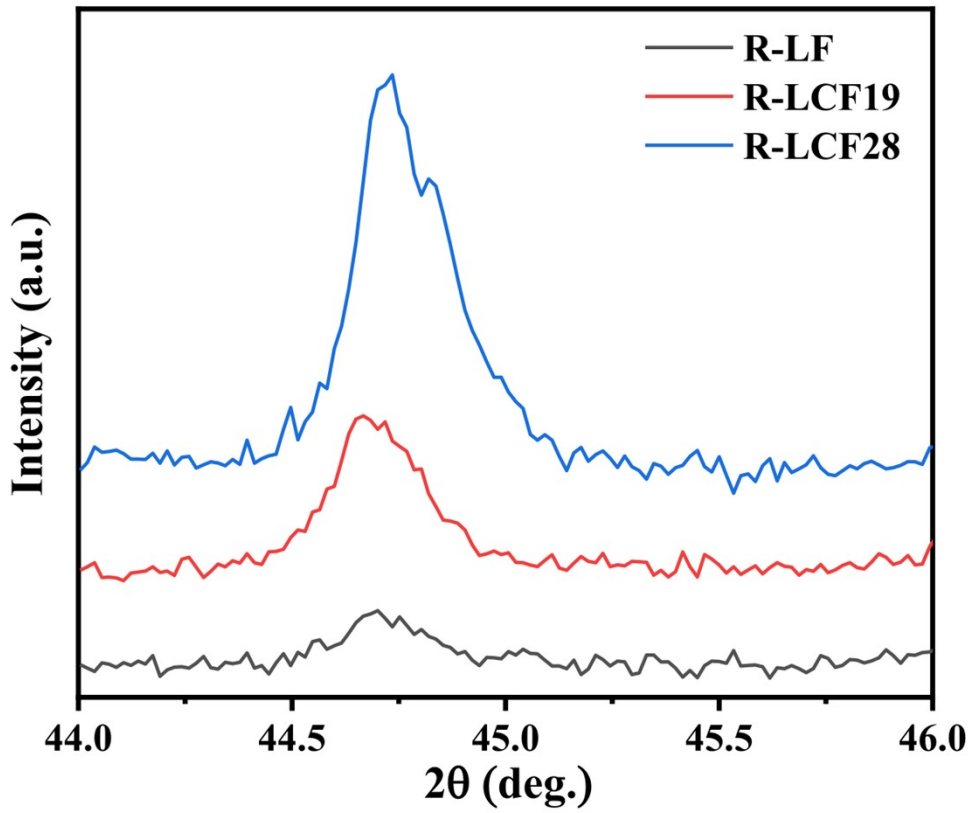

Figure S6. XRD pattern of R-LF, R-LCF19, and R-LCF28 between 44 to 46 degree (2θ).

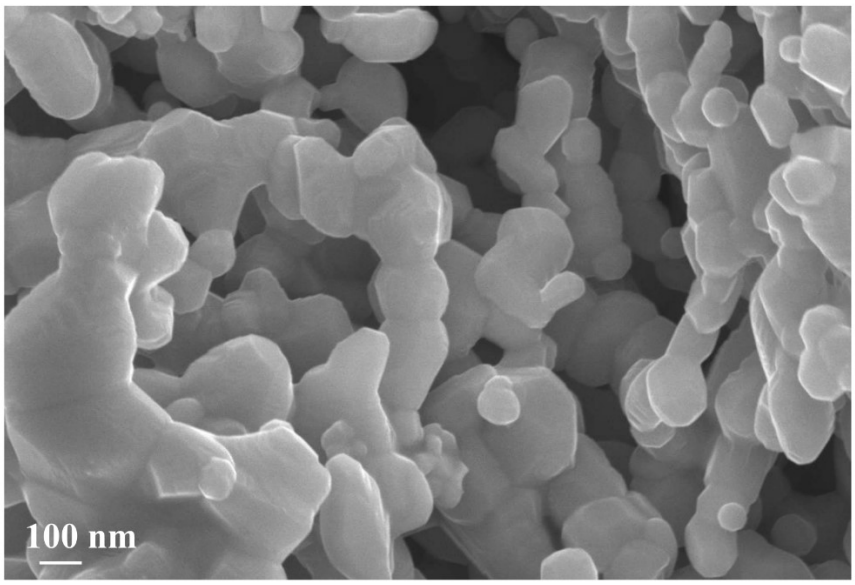

Figure S7. SEM image of LCF19 of high magnification.

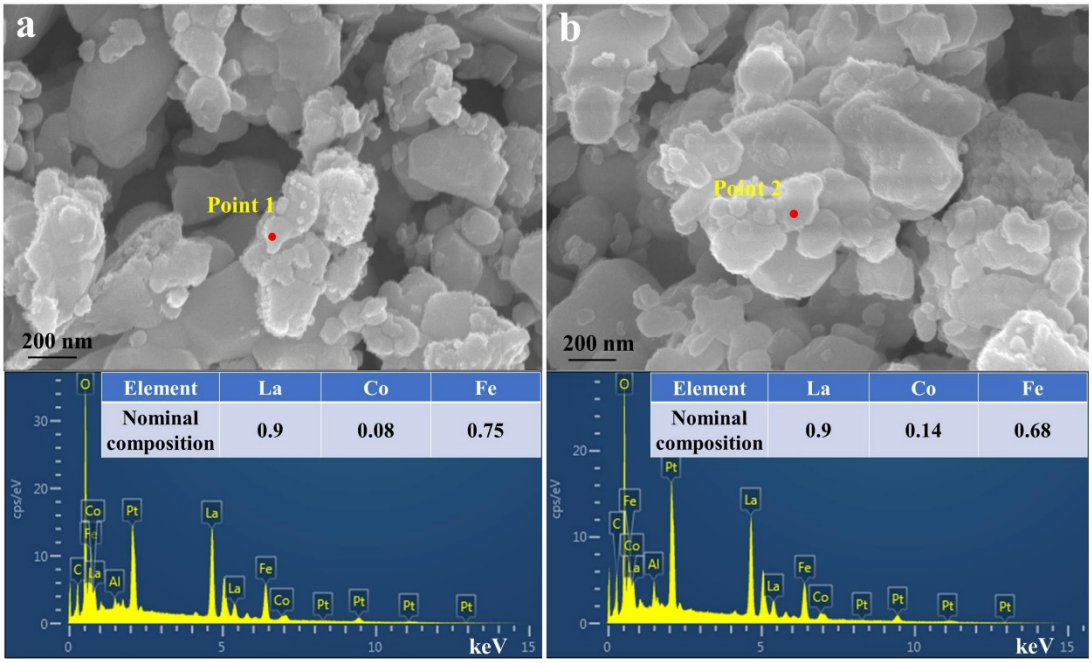

Figure S8. The SEM and EDS spectra of (a) R-LCF19 and (b) R-LCF28.

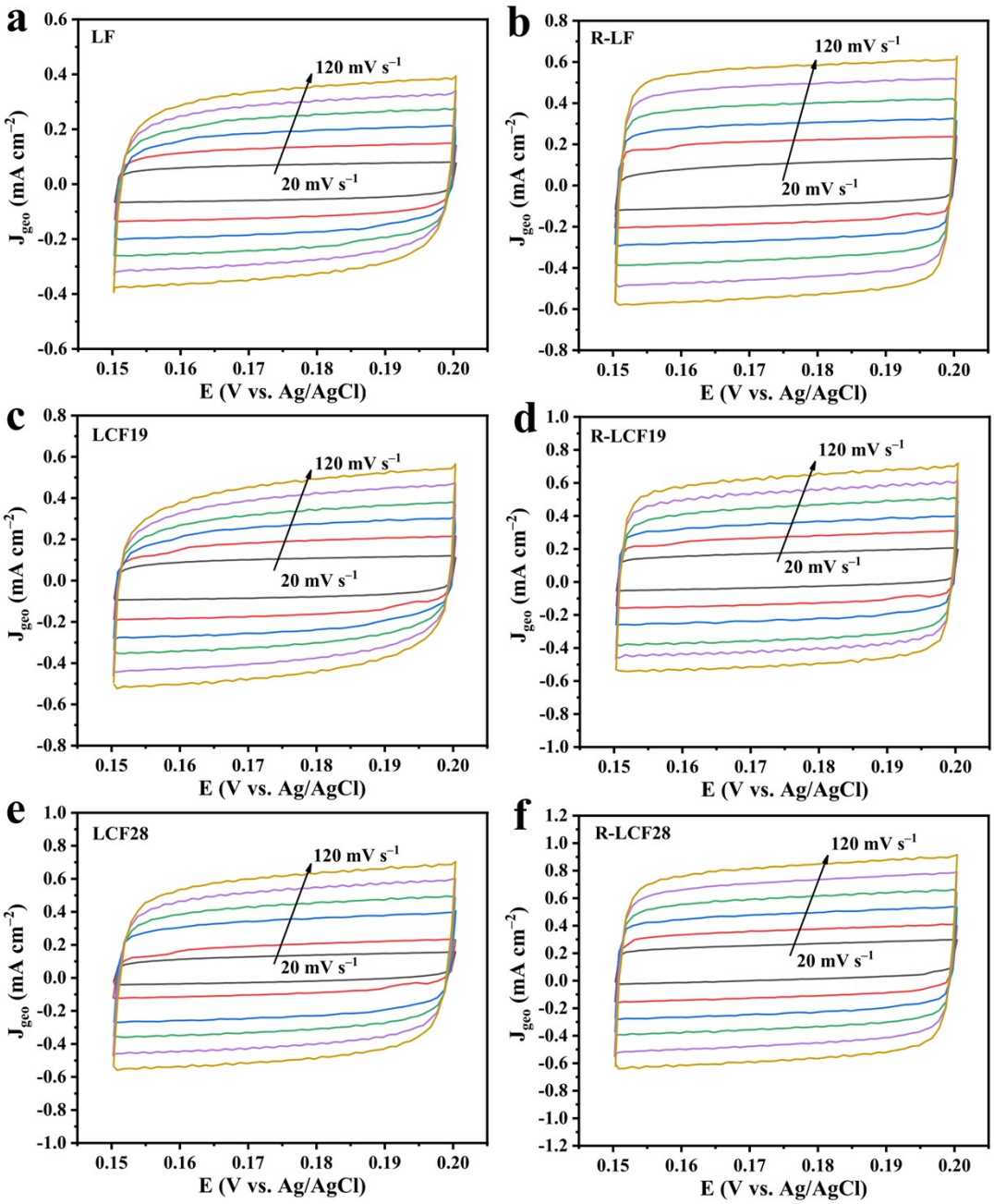

Figure S9. CV curves scanning at different scan rates between 20-120 mV s^{-1} for LF, R-LF, LCF19, R-LCF19, LCF28, and R-LCF8.

2. Supplementary tables:

Table S1 Concentration of La, Co, and Fe calculated by ICP-OES.

Sample	Element content (wt. %)			Element content (at. %)		
	La	Co	Fe	La	Co	Fe
R-LF	67.47	/	32.53	45.47	/	54.53
R-LCF19	68.35	3.50	28.15	46.62	5.63	47.75
R-LCF28	66.95	6.98	26.07	45.15	11.10	43.75

Table S2. The fitted equivalent circuit values of the catalysts.

Catalysts	R_s (Ω)	R_{ct} (Ω)
LF	5.36	73.05
R-LF	5.44	45.32
LCF19	4.93	58.31
R-LCF19	5.43	30.85
LCF28	5.16	57.39
R-LCF28	4.79	11.62