

Supplementary information

Low-vacuum Pyrolysis of YBCO Films by using Fluorine-Free Metal Organic Chemical Deposition

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Such a low-vacuum system is set at a given pressure by control panel and fed back to the system by vacuum gauge. Then, the plug valve is controlled to realize the set pressure inside the chamber. During the pyrolysis process, any vacuum change sensed by Vacuum Gauge will be automatically adjusted by the system. Following the above working principle, the low-vacuum condition can be maintained throughout the pyrolysis process.

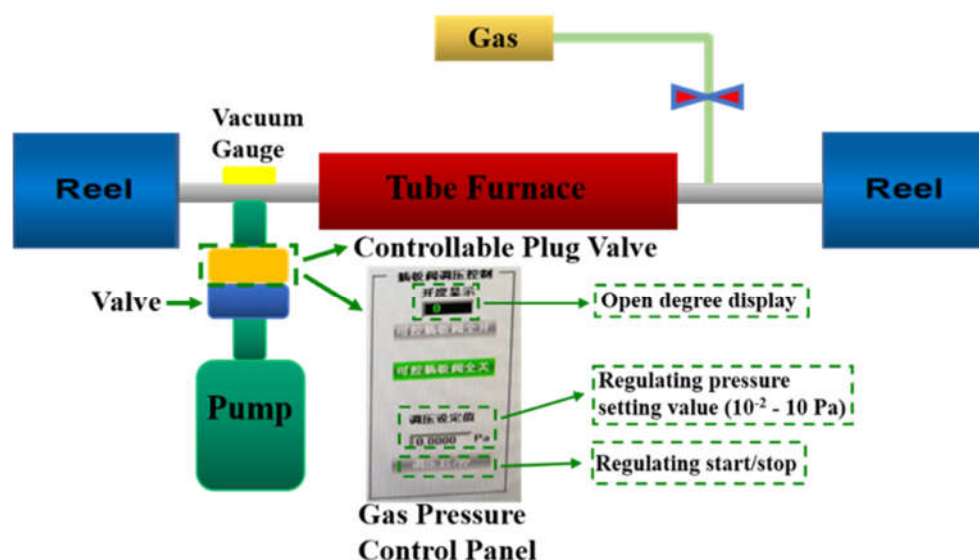


Figure S1. Schematic diagram of low-vacuum pyrolysis equipment.

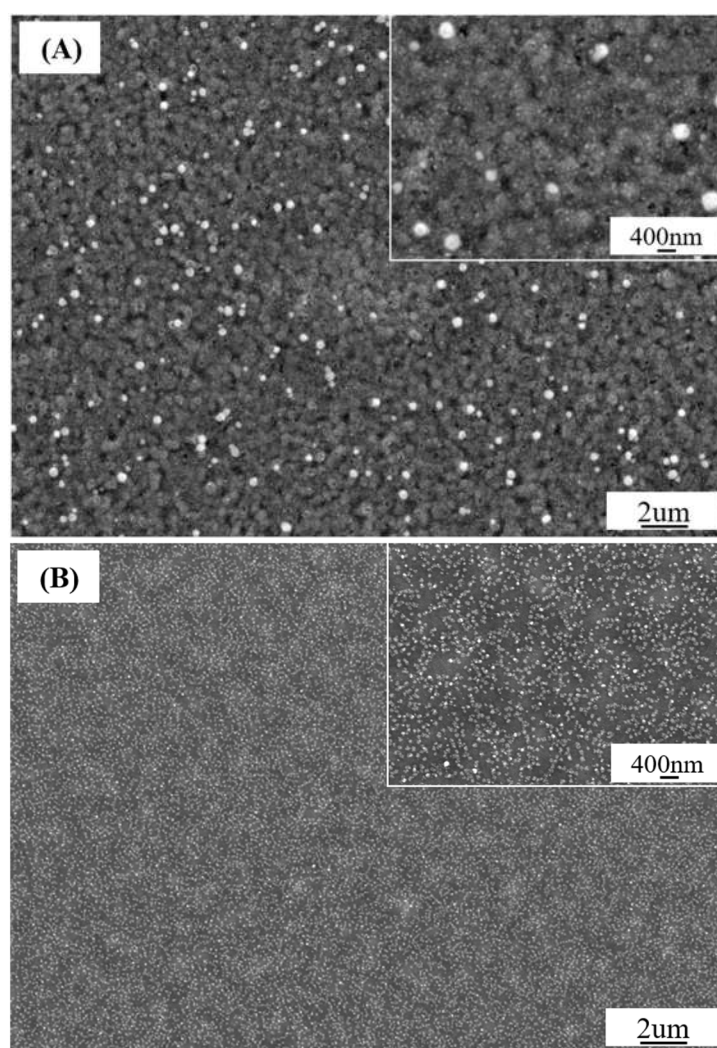


Figure S2. Secondary electron images of low vacuum pyrolysis films: (A) 10 °C/min;(B) 20 °C/min.

(A) eZAF Smart Quant Results

Element	Weight %	Atomic %	Net Int.
O K	21.93	63.98	733.83
Y L	8	4.2	141.09
Ba L	49.81	16.93	358.39
Cu K	20.25	14.88	95.73

(B) eZAF Smart Quant Results

Element	Weight %	Atomic %	Net Int.
C K	3.26	11.23	53.62
O K	22.84	59.03	750.07
Y L	6.95	3.23	125.4
Ba L	48.82	14.7	353.52
Cu K	18.14	11.81	85.93

(C) eZAF Smart Quant Results

Element	Weight %	Atomic %	Net Int.
O K	20.87	61.44	811.23
Y L	8.65	4.58	181.64
Ba L	45.81	15.71	392.58
Cu K	24.66	18.28	138.7

Figure S3: EDS analysis of surface particles obtained from low vacuum pyrolysis films treated at (A) 810 °C and (B) 815 °C for 30 min, respectively. (C) EDS analysis of surface particles obtained from conventional film treated at 810 °C for 1 h.

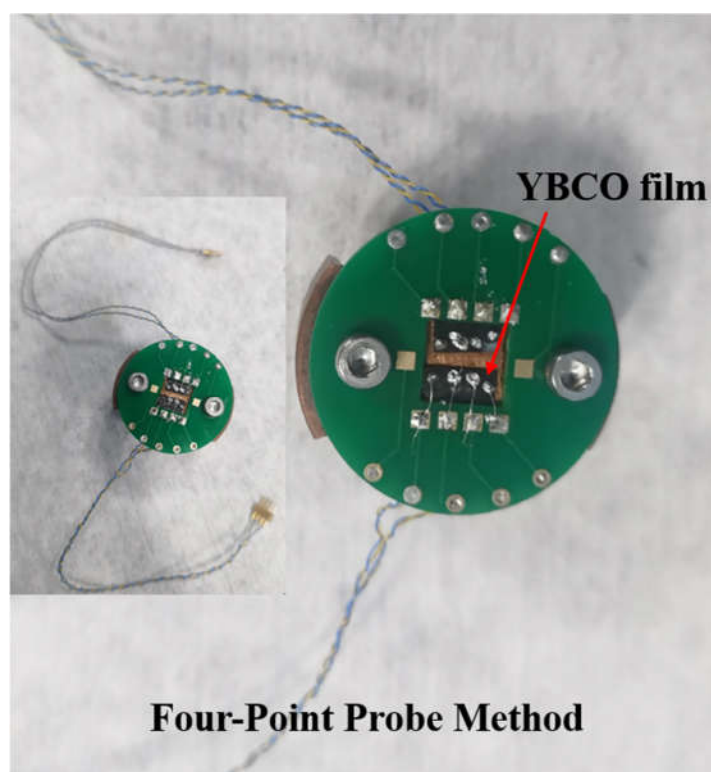


Figure S4. The photo of the four-point probe method.