

## Supplementary Material

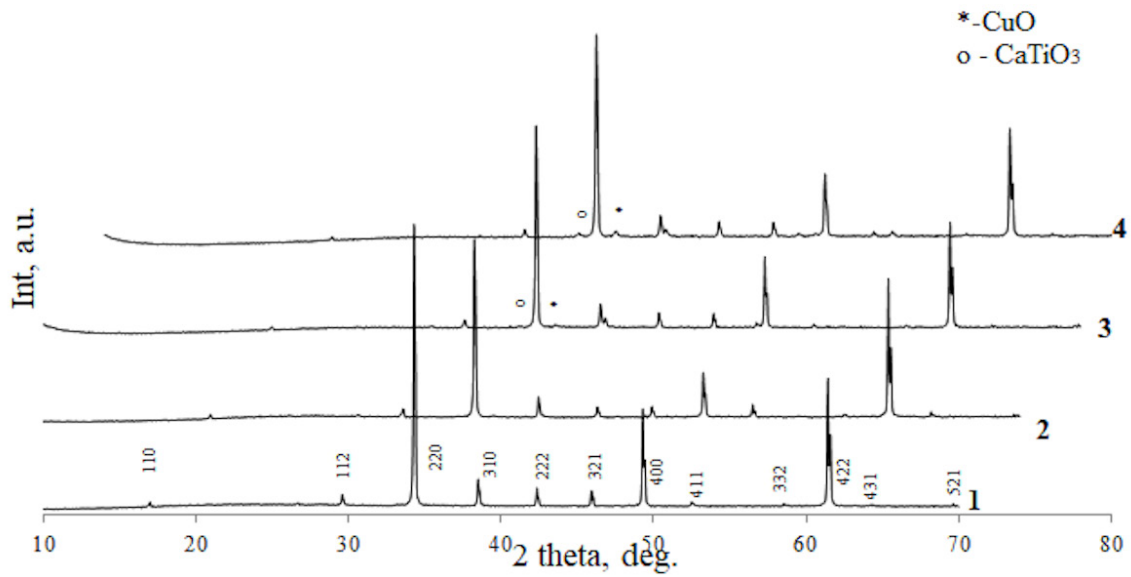


Fig. S1. X-ray diffraction patterns of the  $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$  (1) and  $\text{CaCu}_3\text{Ti}_{4-4x}\text{Co}_{4x}\text{O}_{12-\delta}$  at  $x=0.01$  (2),  $0.03$  (3),  $0.06$  (4).

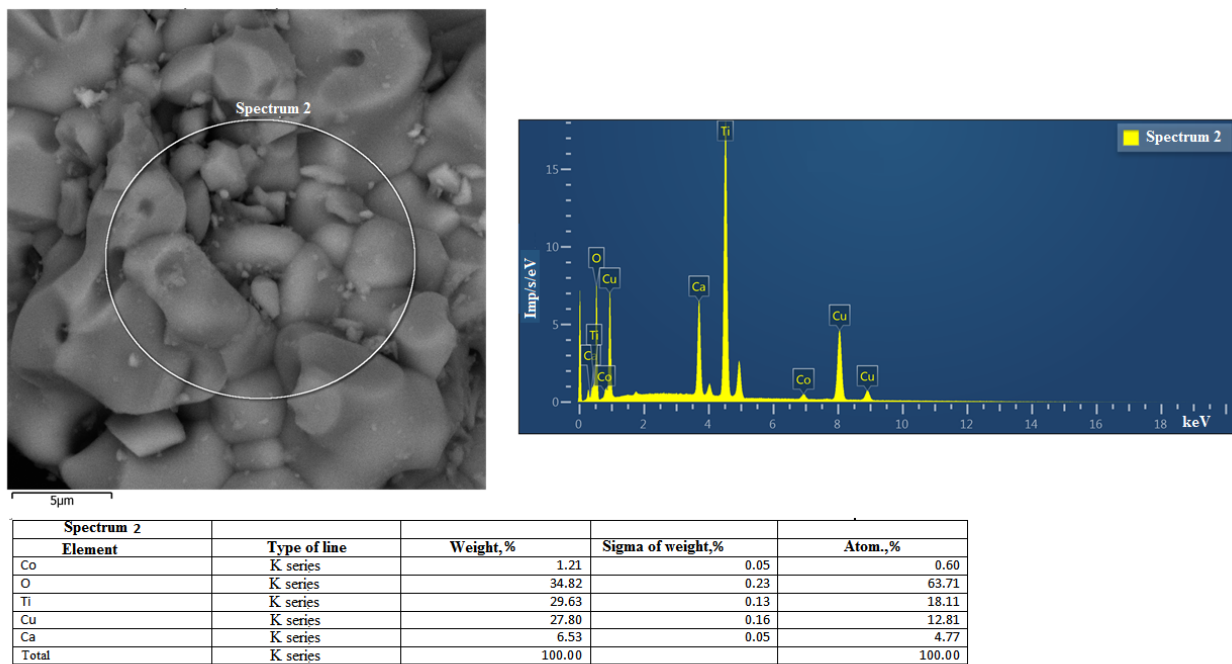
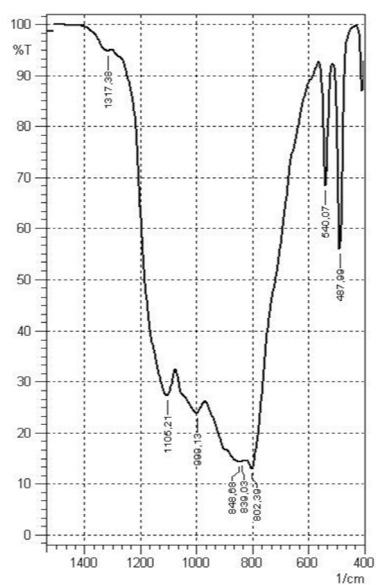


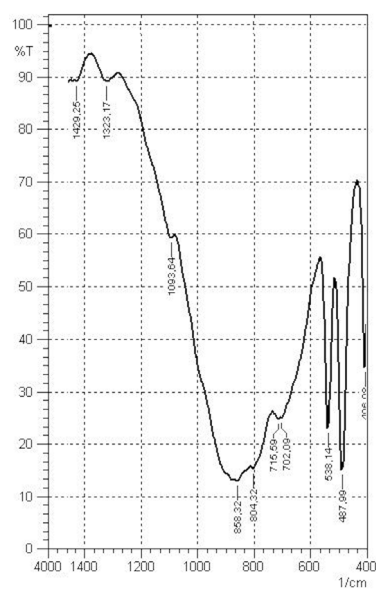
Fig. S2. EDS-spectrum and the microphotograph of the surface of the  $\text{CaCu}_3\text{Ti}_{4-4x}\text{Co}_{4x}\text{O}_{12-\delta}$  ( $x=0.03$ ).

Table S1. The energy positions of the components of the XPS spectra.

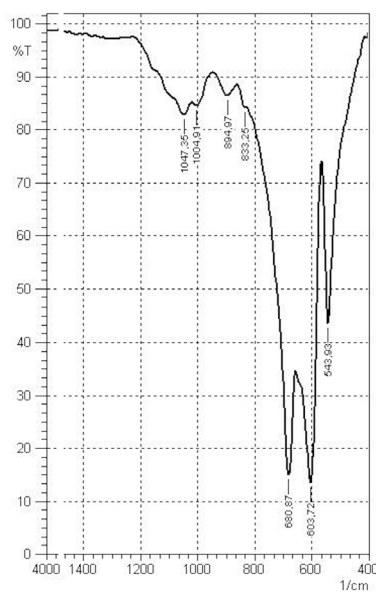
Ion	Energy, eV			
	Peak			
	$2p_{3/2}$	2p satellite	$2p_{1/2}$	2p satellite
$\text{Co}^{2+}$	780.4	786.0	796.2	801.8
$\text{Cu}^{2+}$	933.6	940.8, 943.3	953.4	961.5
$\text{Ti}^{+(4-\delta)}$	457.7	471.3	463.5	
$\text{Ca}^{2+}$	346.5	354.9	350.1	358.2



a



b



c

**Fig. S3.** Comparison of FTIR spectra of the  $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$  (a),  $\text{CaCu}_3\text{Ti}_{3.76}\text{Co}_{0.24}\text{O}_{12-\delta}$  (b) and  $\text{CoO}$  (c).