

# Supplementary Materials: Investigation of Silver Nanowire Transparent Heated Films Possessing the Application Scenarios for Electrothermal Ceramics

Yefu Hu and Weimin Wu \*

International College, Krirk University, Bangkok 10220, Thailand; huyuehui@jci.edu.cn

\* Correspondence: 2019008@cqust.edu.cn

**Table S1.** Substrates specification.

Substrate Name	Area	Specification
Ceramic	2.5 cm × 2.5 cm	The ceramic substrate is lab-made, and the process is as follows: The main component of the body: Al <sub>2</sub> O <sub>3</sub> about 20%, SiO <sub>2</sub> about 65%, K <sub>2</sub> O + Na <sub>2</sub> O about 5%. The main component of the glaze material: Al <sub>2</sub> O <sub>3</sub> about 14%, SiO <sub>2</sub> about 70%, CaO+MgO about 5%, K <sub>2</sub> O+Na <sub>2</sub> O about 6%; Co <sub>2</sub> O <sub>3</sub> of 1–2%.
		Sinter: The body is placed in a dryer and dried for 2 h at 100 °C; then glazing was performed on the surface of the dried body with thickness of glaze layer of 0.8 mm; then the body is placed in the dryer to dry for 1.5 h at a temperature of 100 °C. After drying, body was calcined for 3 hours in a sintering furnace at 1200 °C and allowed to stand for 0.5 h.
		Silica-boron glass.
Glass	2.5 cm × 2.5 cm	
Ceramic-SiO <sub>2</sub>	2.5 cm × 2.5 cm	The ceramic-SiO <sub>2</sub> substrate is lab-made, and the process is as follows: A layer of SiO <sub>2</sub> with a thickness about 680 nm was prepared on the glaze of ceramic substrate by magnetron sputtering with SiO <sub>2</sub> target (purity of 99.99%). The magnetron sputtering process was set as follows: working pressure of 1.2 Pa, power of 120 W, argon flow of 40 sccm, sputtering time of 90 min.

**Table S2.** Surface roughness Ra of transparent heating film and substrates.

Samples	Ceramic/AgNW-TCF	Ceramic/AgNW@AZO-TCF				Ceramic Substrate	Ceramic-SiO <sub>2</sub> Substrate	Glass Substrate
	1#	2#	3#	4#	5#			
surface roughness <i>Ra</i> (nm)	22.2	20.5	18.7	21.4	29.9	8.29	4.20	1.65