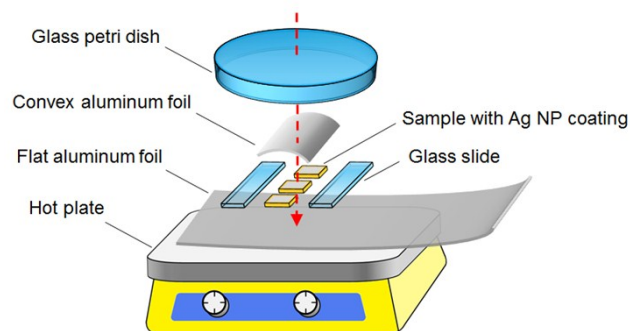


**Electronic Supplementary Information**

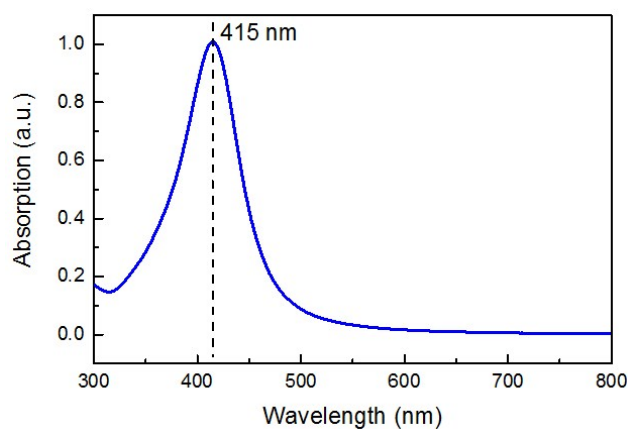
**Controlled convective self-assembly of silver nanoparticles in volatile organic solvent and its application in electronics**

Chengpeng Jiang, Li Li and Philip Wing Tat Pong

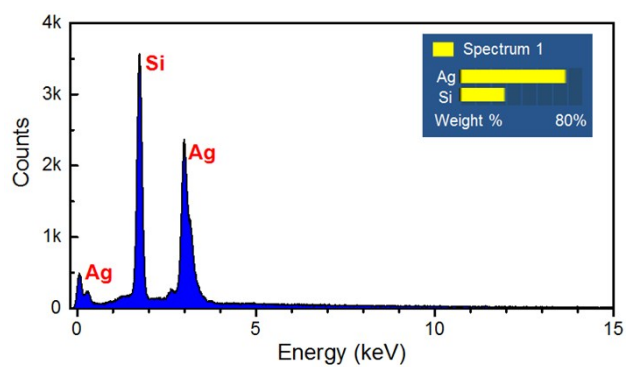
Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong



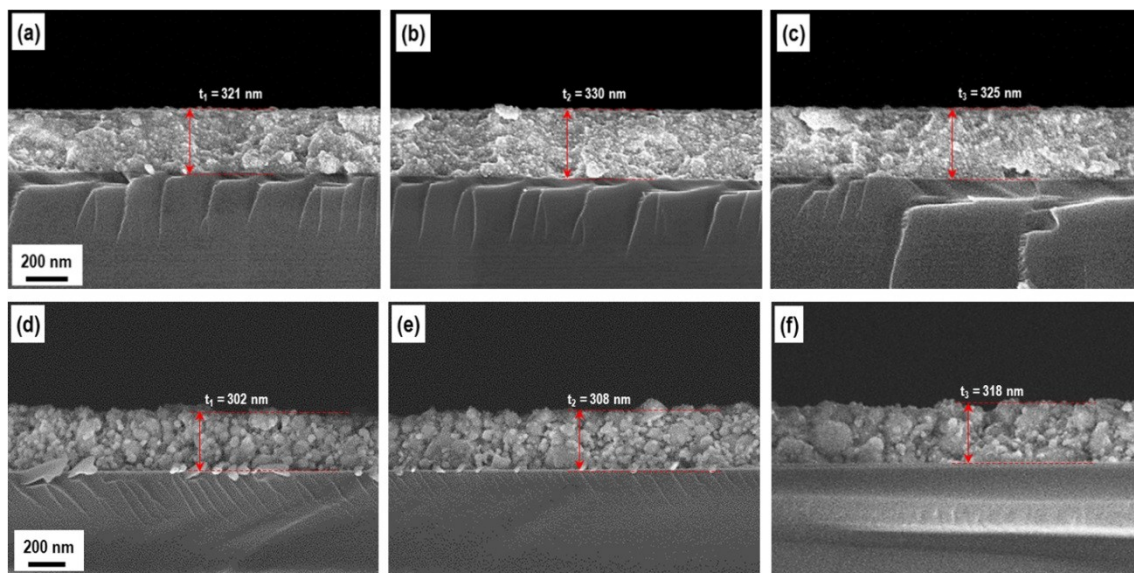
**Fig. S1** Schematic illustration of the nanoparticle sintering setup.



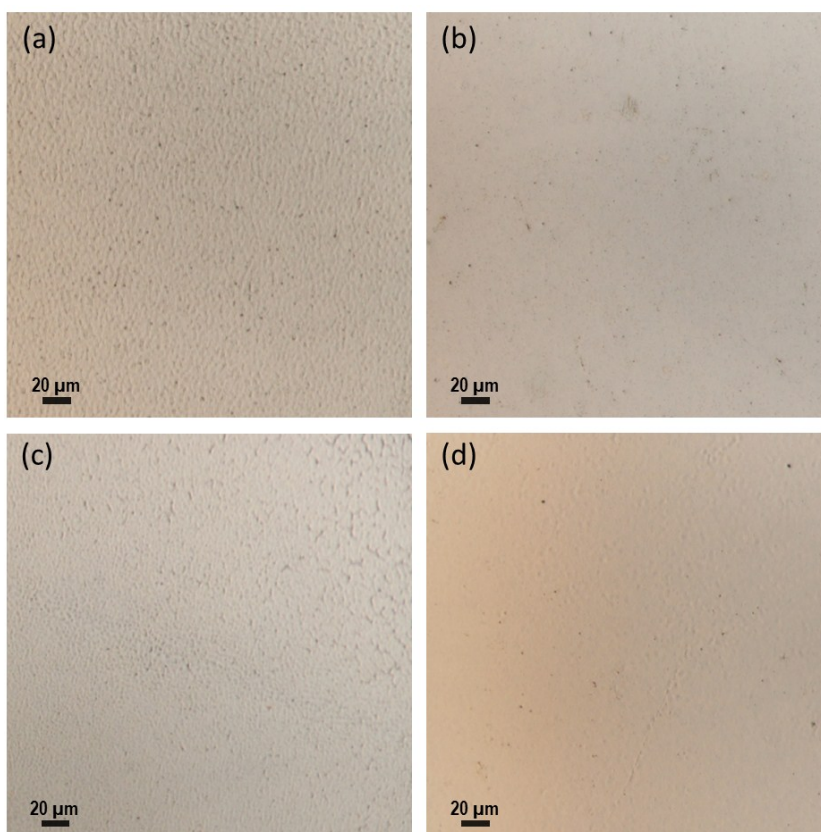
**Fig. S2** UV-Vis absorption spectrum of the as-synthesized Ag nanoparticles dispersed in chloroform.



**Fig. S3** EDS spectrum of the sintered Ag NP coating on Si substrate. Assembly condition:  $r_w = 50 \mu\text{L min}^{-1}$ ,  $\rho = 37.5 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ . Sintering condition:  $200^\circ\text{C}$ , 15 min.



**Fig. S4** SEM cross-section images of an unsintered Ag NP coating preliminarily heated at 160 °C (a–c) and a sintered Ag NP coating heated at 200 °C (d–f). Each group of images (a–c; d–f) were taken at different locations (spaced at  $\sim 1000 \mu\text{m}$  along the assembly direction) of the coatings. Assembly condition:  $r_w = 100 \mu\text{L min}^{-1}$ ,  $\rho = 37.5 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ . The scale bar in (a) is valid for a–c, and the scale bar in (d) is valid for d–f.



**Fig. S5** Typical optical microscopic images of the sintered Ag NP coatings on Si substrates. Assembly condition: (a)  $r_w = 50 \mu\text{L min}^{-1}$ ,  $\rho = 37.5 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ ; (b)  $r_w = 100 \mu\text{L min}^{-1}$ ,  $\rho = 37.5 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ ; (c)  $r_w = 50 \mu\text{L min}^{-1}$ ,  $\rho = 25 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ ; (d)  $r_w = 50 \mu\text{L min}^{-1}$ ,  $\rho = 31.25 \text{ mg mL}^{-1}$ ,  $\theta = 22^\circ$ . Sintering condition: (a)–(d) 200 °C, 15 min. Notes: (a), (b), (c), and (d) in this figure correspond to b, d, h, and i in Fig. 5, respectively.