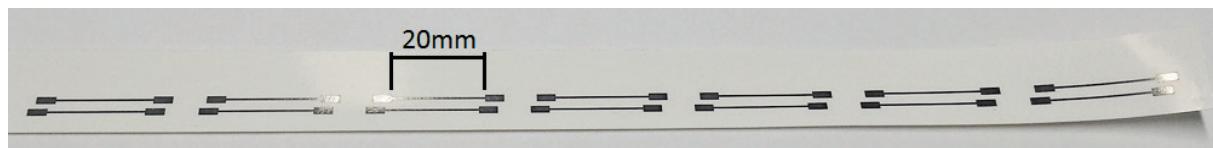


## Supplementary Information

### Assisted Sintering of Silver Nanoparticle Inkjet Ink on Paper with Active Coatings

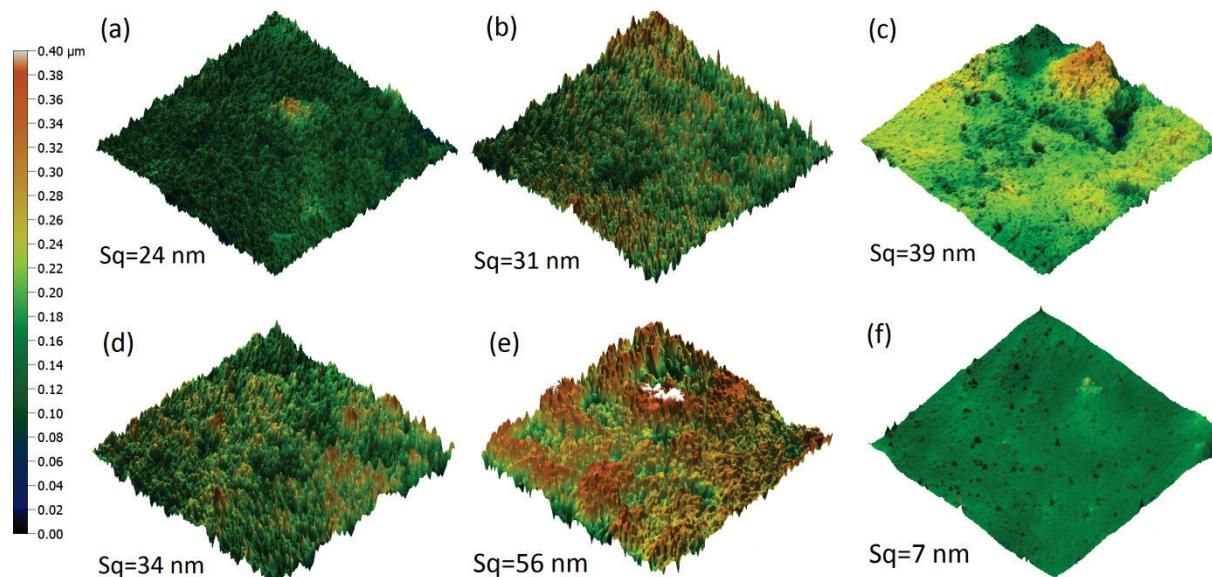
Thomas Öhlund\*, Anna K. Schuppert, Britta Andres, Henrik Andersson, Sven Forsberg, Wolfgang Schmidt, Hans-Erik Nilsson, Mattias Andersson, Renyun Zhang and Håkan Olin



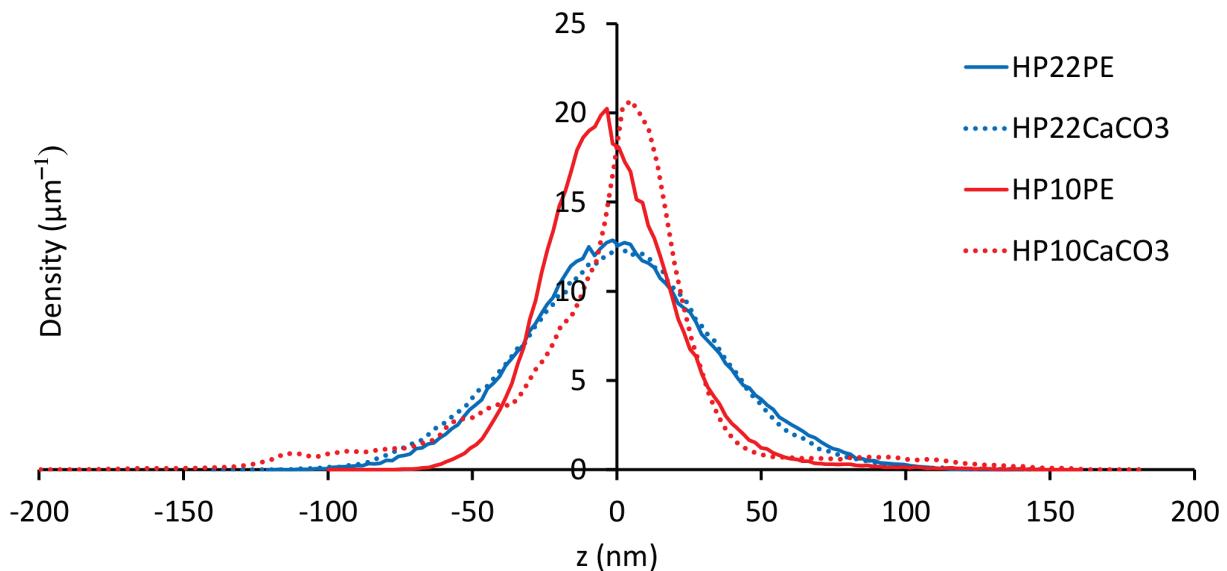
**Supplementary Figure S1.** Inkjet-printed conductors of size 20x0.4 mm, with integrated measurement pads of 4x2 mm.

**Supplementary Table S2.** Characteristic pore radius of the different absorption coatings on top of a precoating. Coatings on top of the  $\text{CaCO}_3$  precoating have slightly larger pore sizes. Values given in nanometers. The accuracy is estimated to be within  $\pm 5\%$ , limited mainly by the manual application of the coatings.

	HP8	HP10	HP14	HP16	HP18	HP22
PE	8.7	12.5	17.8	22	25	32
$\text{CaCO}_3$		16.2	21	28	32	38



**Supplementary Figure S3.** Topography (AFM, 20  $\mu\text{m}$  square). The coatings with HP22 pigments (b,d) have larger high frequency roughness compared to HP10 pigments (a,c). Root mean square (RMS) surface roughness is shown below each image. a)HP10/PE, b) HP22/PE, c) HP10/ $\text{CaCO}_3$ , d) HP22/ $\text{CaCO}_3$ , e) LWC paper, f) PET film.



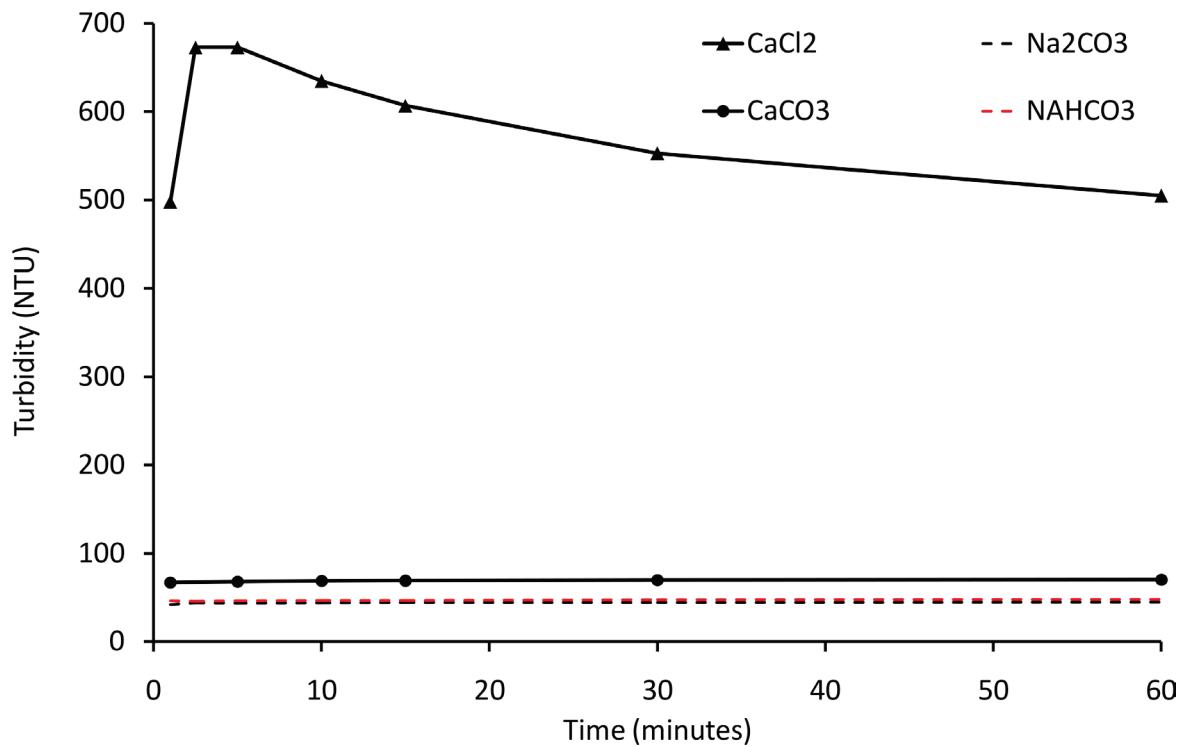
**Supplementary Figure S4.** Surface height distribution (AFM, 20  $\mu\text{m}$  square). The coatings with HP22 pigments have wider distribution compared to HP10 pigments. Surface peaks are  $<150$  nm from the average plane. Since the printed film thickness is  $>250$  nm, the surface roughness is low enough for continuous film formation.

**Supplementary Table S5.** Concentration of elements at surface (quantitative EDS, wt%). Small amounts of chloride and calcium are present at the surface of the papers with  $\text{CaCO}_3$  precoating.

	HP10 PE	HP22 PE	HP10 $\text{CaCO}_3$	HP22 $\text{CaCO}_3$
O	30.2	31.7	29.0	30.4
Al	33.9	35.7	32.5	34.0
Cl			0.5	0.3
Ca			0.4	0.4

**Supplementary Table S6.** Average surface pH of the different absorption coatings on top of a precoating. Coatings on top of a PE precoating are naturally acidic, while the  $\text{CaCO}_3$  precoating renders the coatings slightly alkaline. Average standard deviation 0.10.

	HP8	HP10	HP14	HP16	HP18	HP22
PE	4.6	4.8	4.8	4.5	4.4	4.3
$\text{CaCO}_3$		7.1	7.4	7.5	7.9	8.3



**Supplementary Figure S7.** Turbidity of diluted AgNP dispersion with added salt. Salt concentrations are 0.01M except for CaCO<sub>3</sub> (0.1M). The chloride salt (CaCl<sub>2</sub>, top curve) destabilizes the dispersion. The declining turbidity is caused by aggregation and sedimentation of particles.