

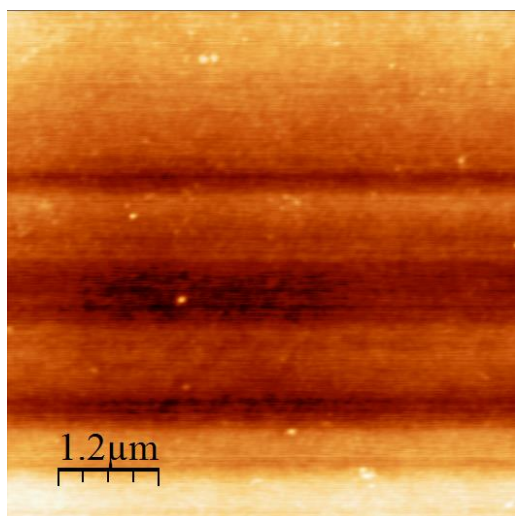
Appendix

Optical properties of aluminium nanoclusters embedded in silicon nitride and amorphous silicon

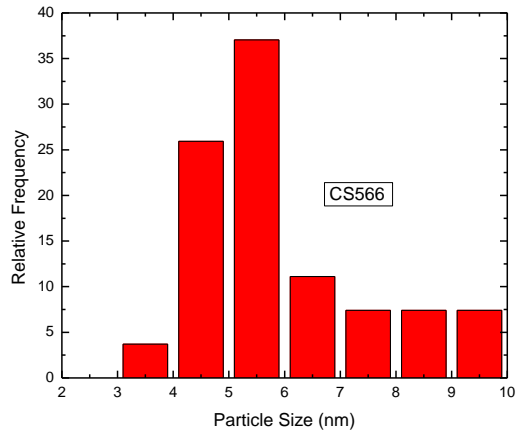
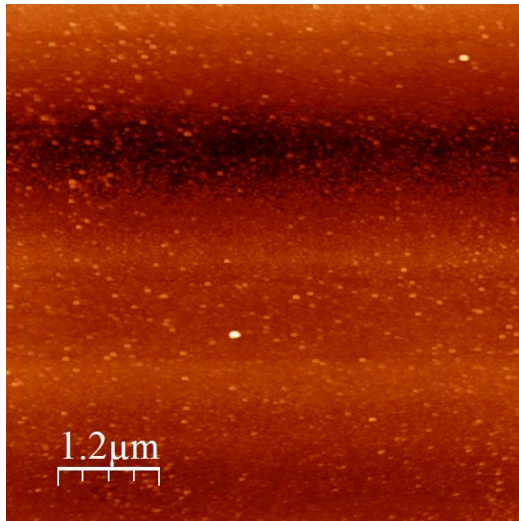
In this appendix the results of the deposition of aluminium clusters in the Zeester vacuum system using the OAR NC-200U gas aggregation cluster source are presented. Layers of silicon nitride or amorphous silicon were deposited via magnetron sputtering. AFM images, particle density, typical particle size and particle size distribution are given, as well as the deposition parameters.

Silicon nitride

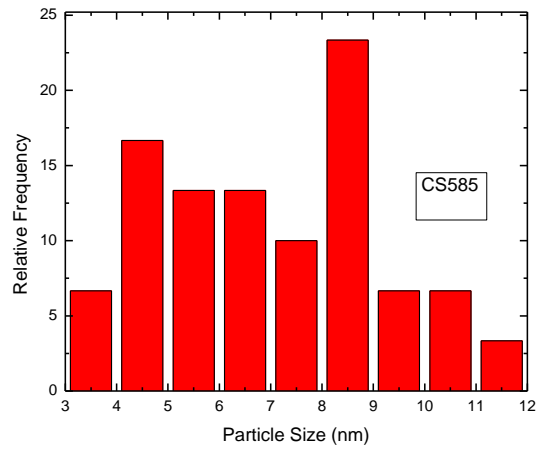
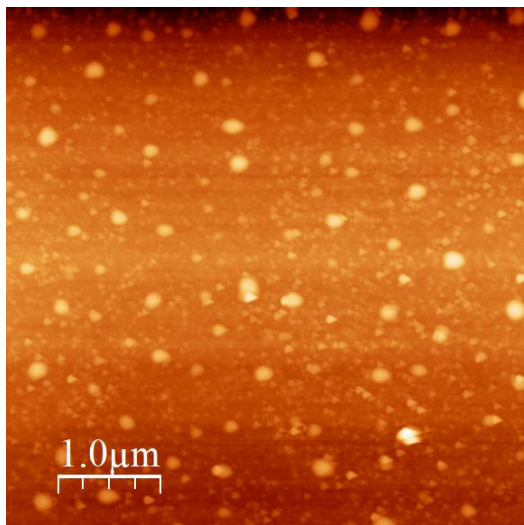
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
SS99	23(6)	n/a	n/a
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
n/a	n/a	n/a	n/a



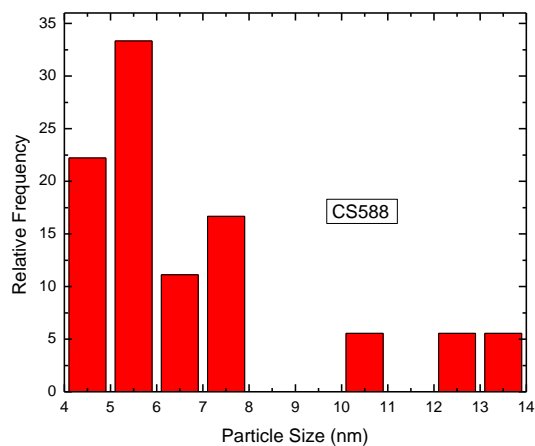
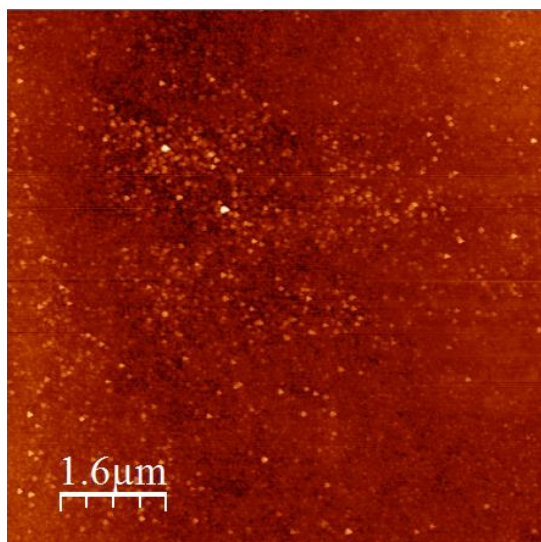
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS566	23(6)	13(3)	6
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.3	80	20	15



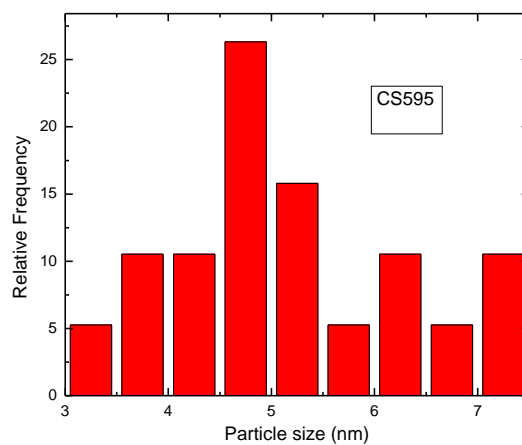
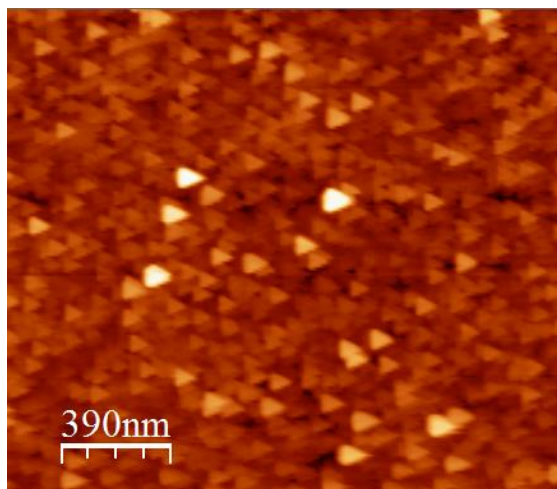
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS585	23(6)	10(2)	12
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	30	20



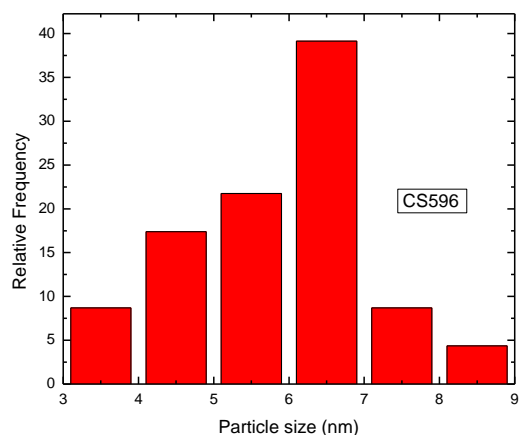
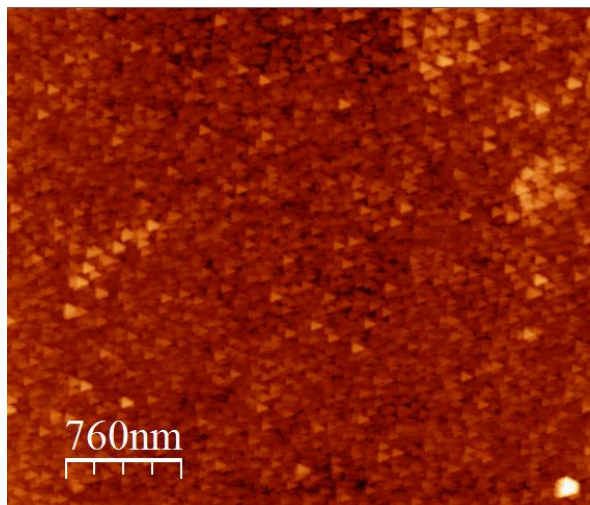
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS588	23(6)	17(4)	12
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	55	20



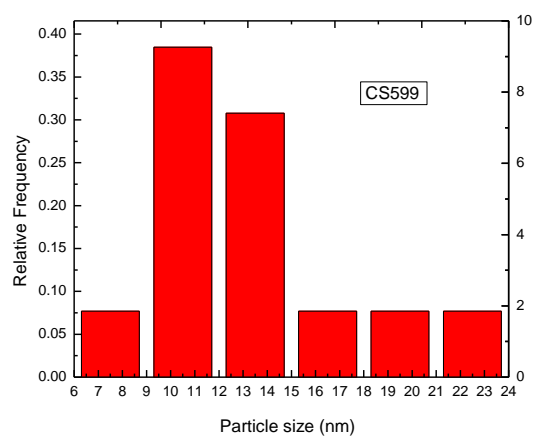
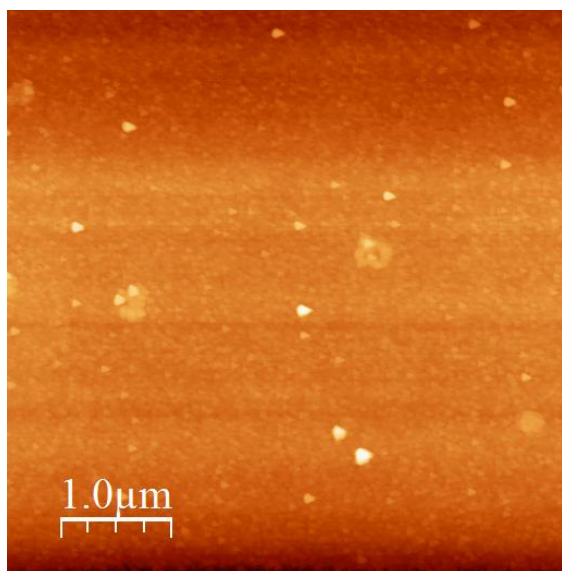
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS595	23(6)	6(2)	10
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.245	40	35	20



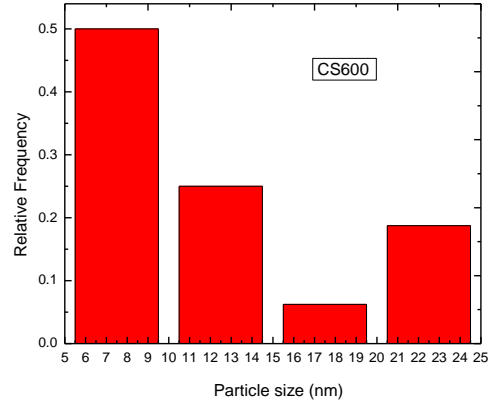
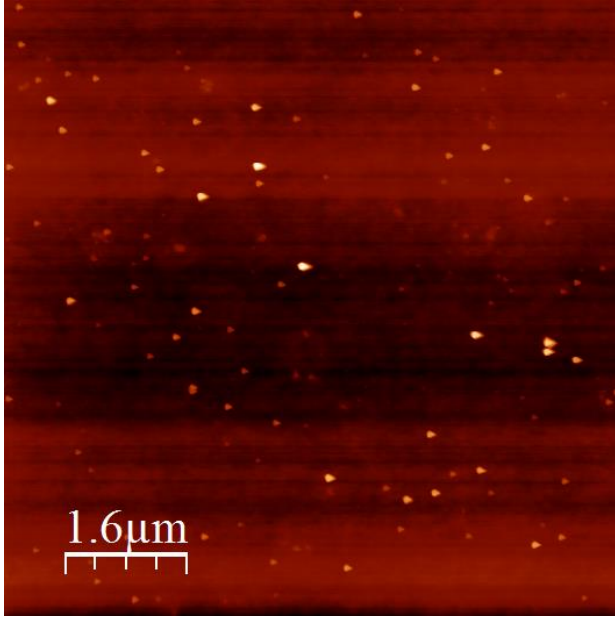
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS596(ox)	23(6)	12(3)	10
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	30	20



Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS599	23(6)	4(1)	15
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	20	20

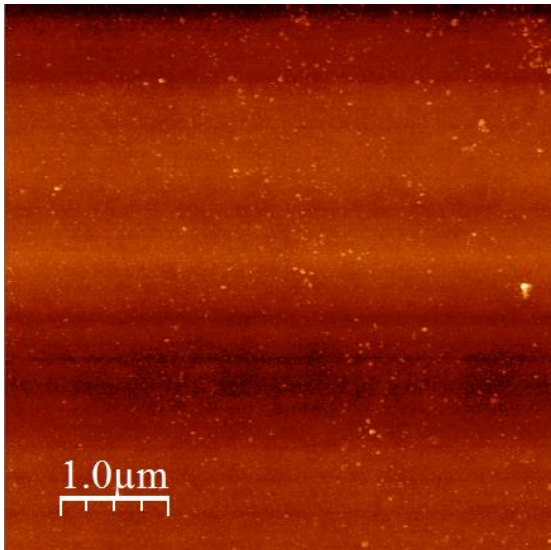


Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS600(ox)	23(6)	4(1)	15
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	20	20

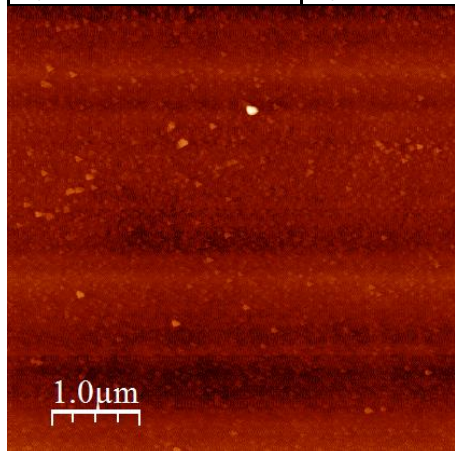


Amorphous silicon

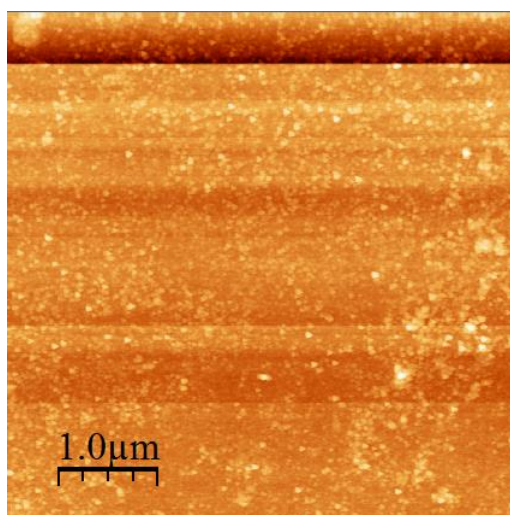
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
SS127	12(2)	n/a	n/a
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
n/a	n/a	n/a	n/a



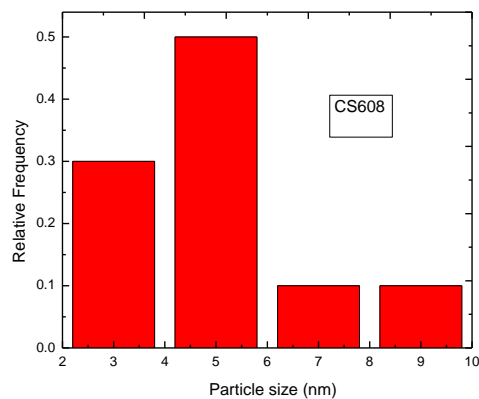
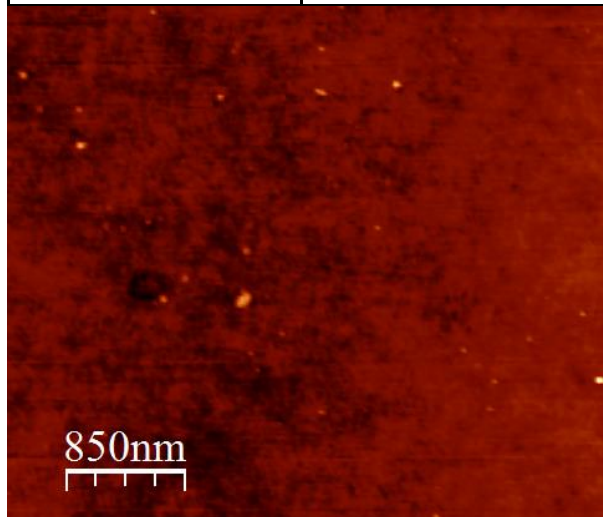
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
SS126	25(4)	n/a	n/a
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
n/a	n/a	n/a	n/a



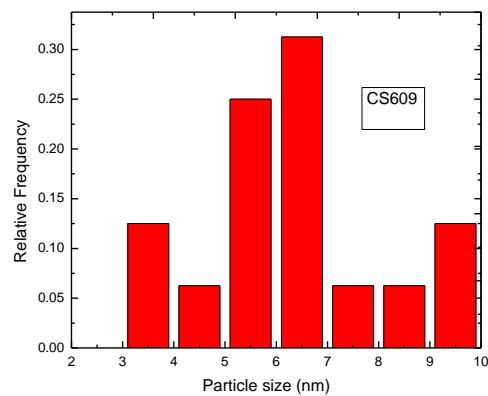
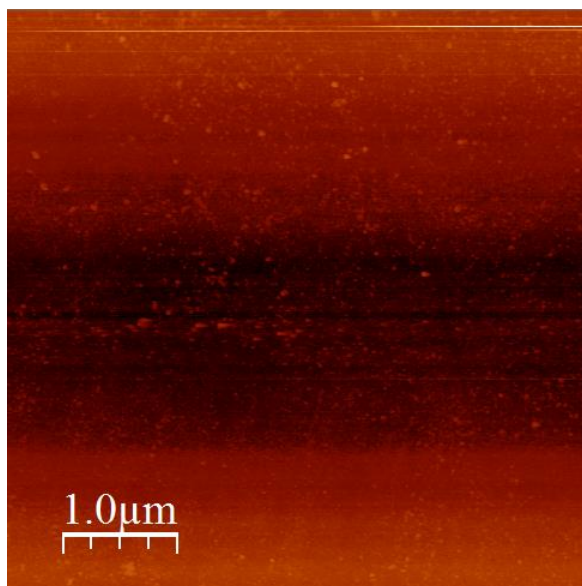
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
SS131	50(8)	n/a	n/a
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
n/a	n/a	n/a	n/a



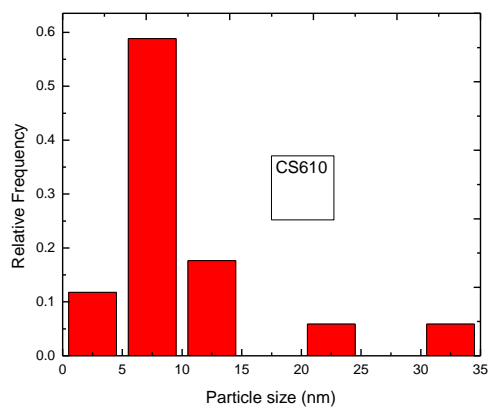
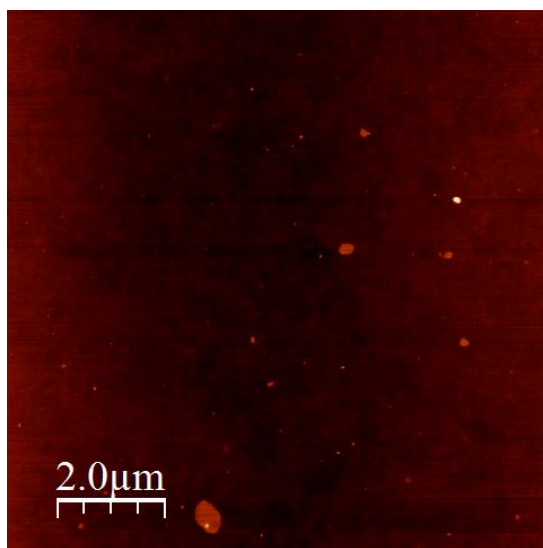
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS608	12(2)	4(2)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	20	20



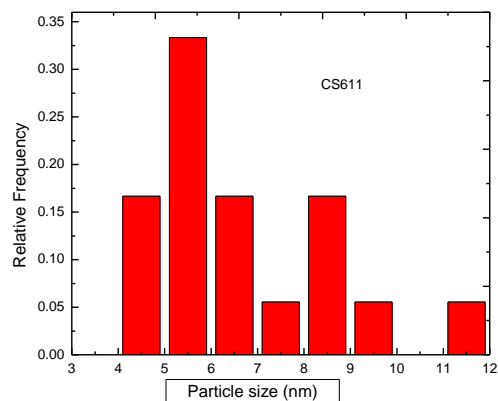
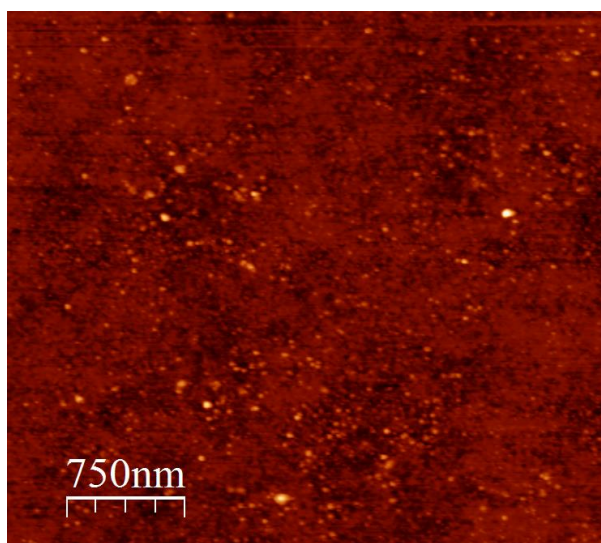
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS609	12(2)	8(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	40	20



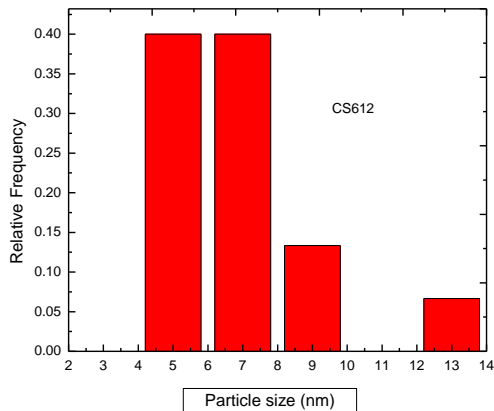
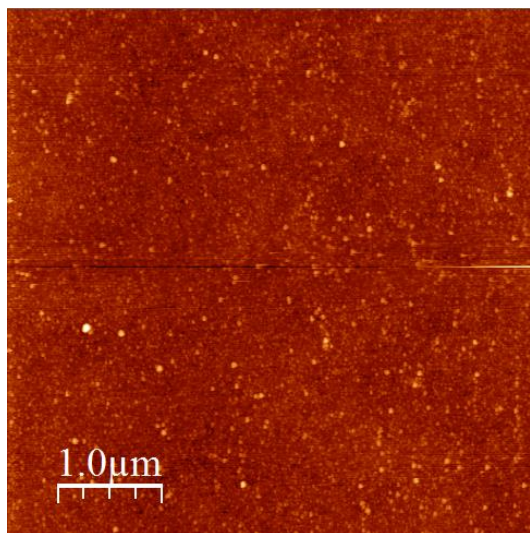
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS610	25(4)	4(2)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	20	20



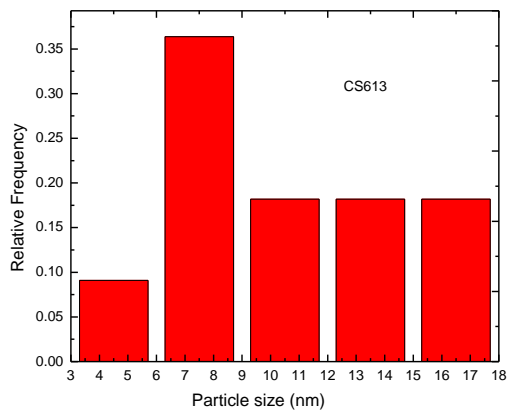
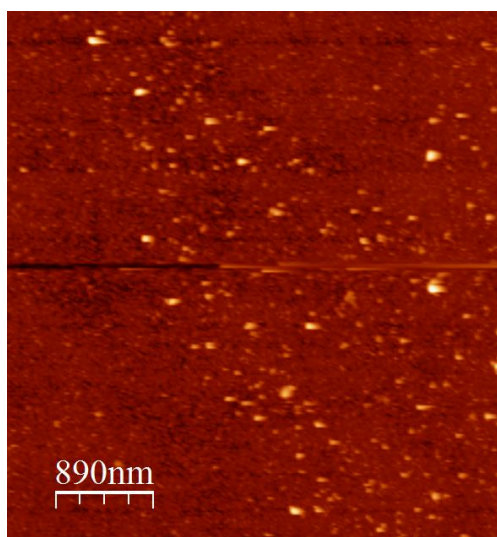
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS611	25(4)	8(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	40	20



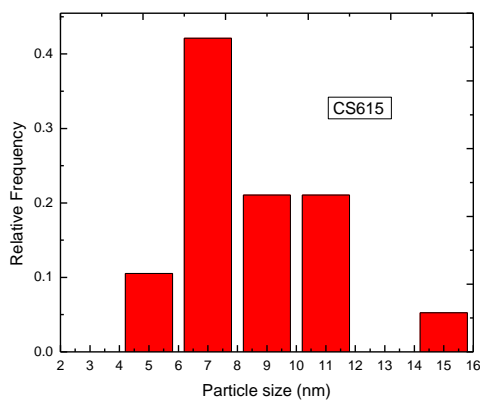
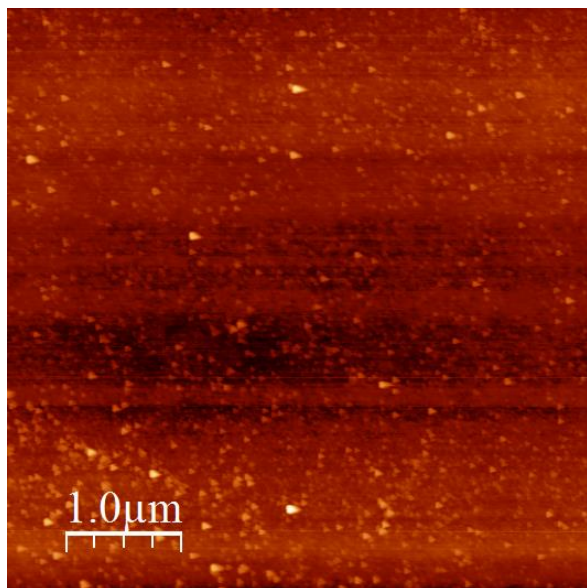
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS612	50(8)	4(2)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	20	20



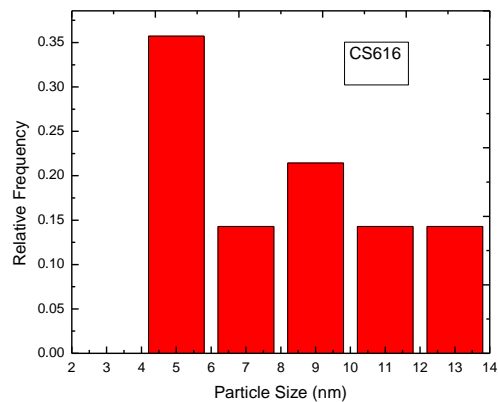
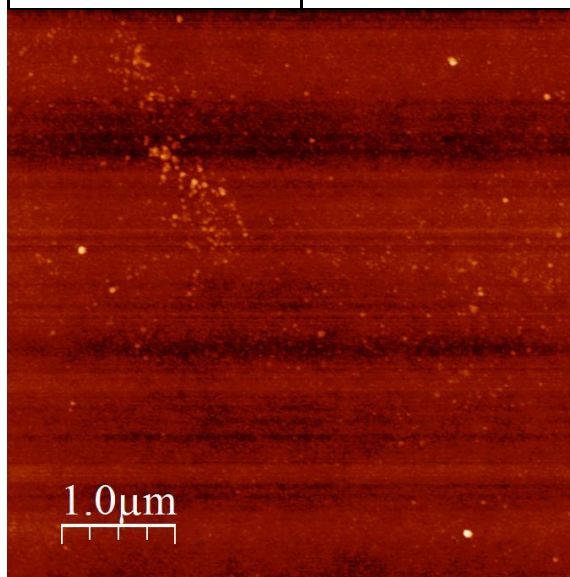
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS613	50(8)	8(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	40	20



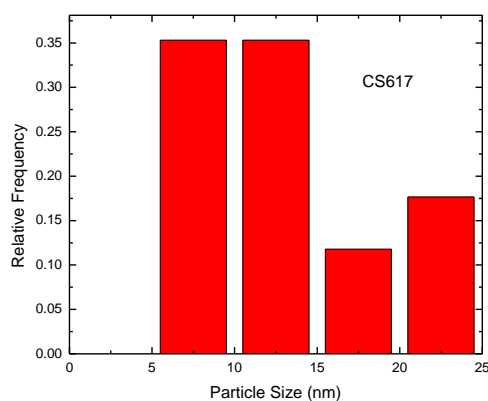
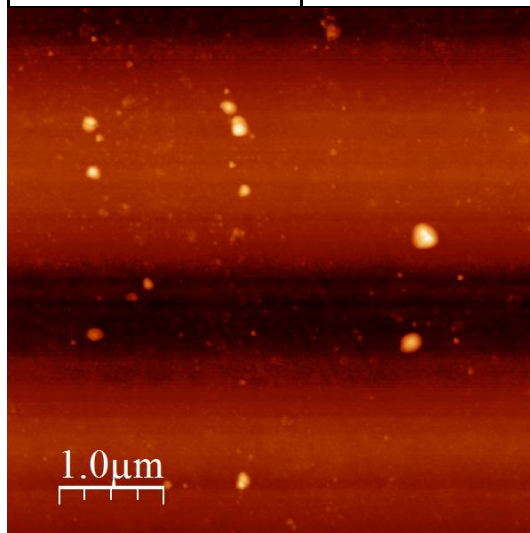
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS615	25(4)	3(1)	6
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.25	40	20	20



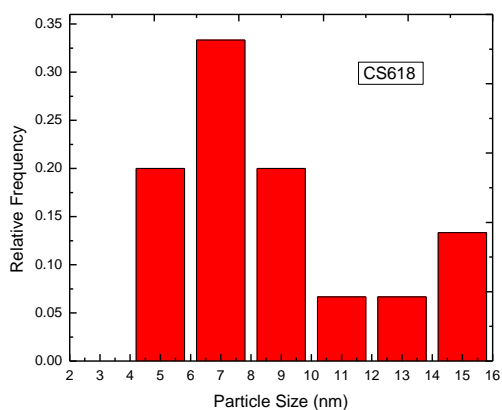
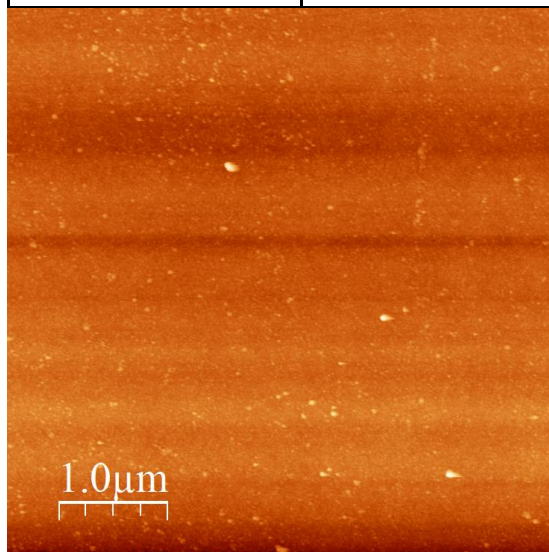
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS616(ox)	12(2)	7(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	35	20



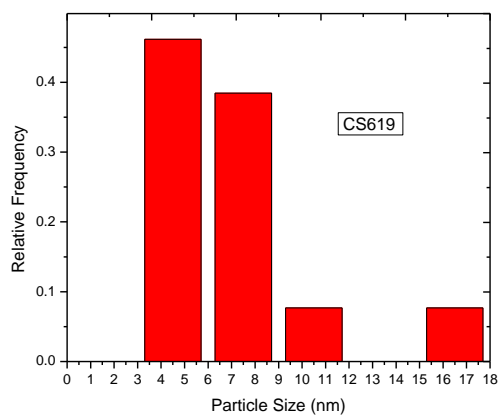
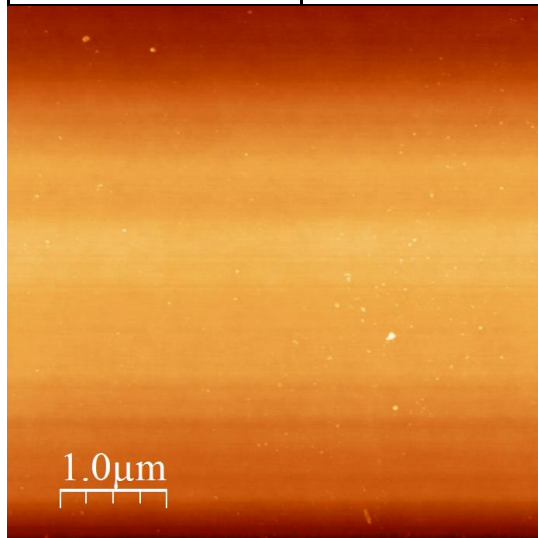
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS617(ox)	25(4)	8(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	35	20



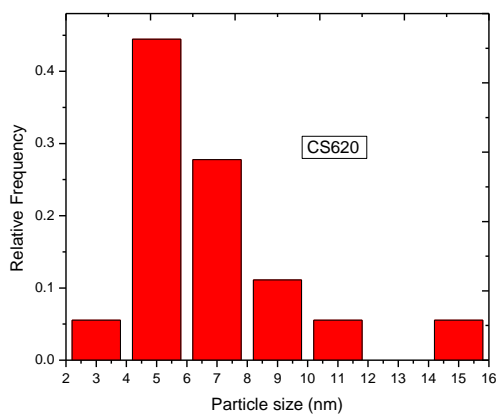
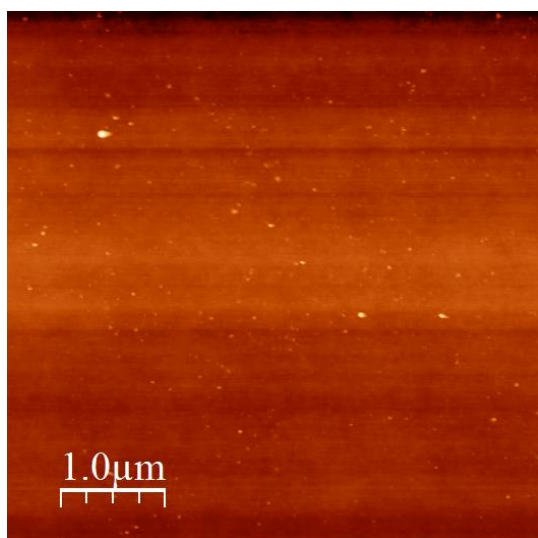
Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS618	25(4)	6(2)	6
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.254	40	40	20



Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS619	n/a	4(2)	5
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.3	40	15	20



Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS620	n/a	4(2)	6
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.254	40	20	20



Sample	Layer thickness (nm)	Particle density	Average particle size (nm)
CS621(ox)	50(8)	8(3)	8
Current (A)	Agglomeration length (mm)	Deposition time (min)	Gas flow (SCCM)
0.2	40	30	20

