Electronic Supplementary Material (ESI) for Nanoscale.

Supporting Information

Numerical insights into the early stages of nanoscale electrodeposition: nanocluster surface diffusion and aggregative growth†

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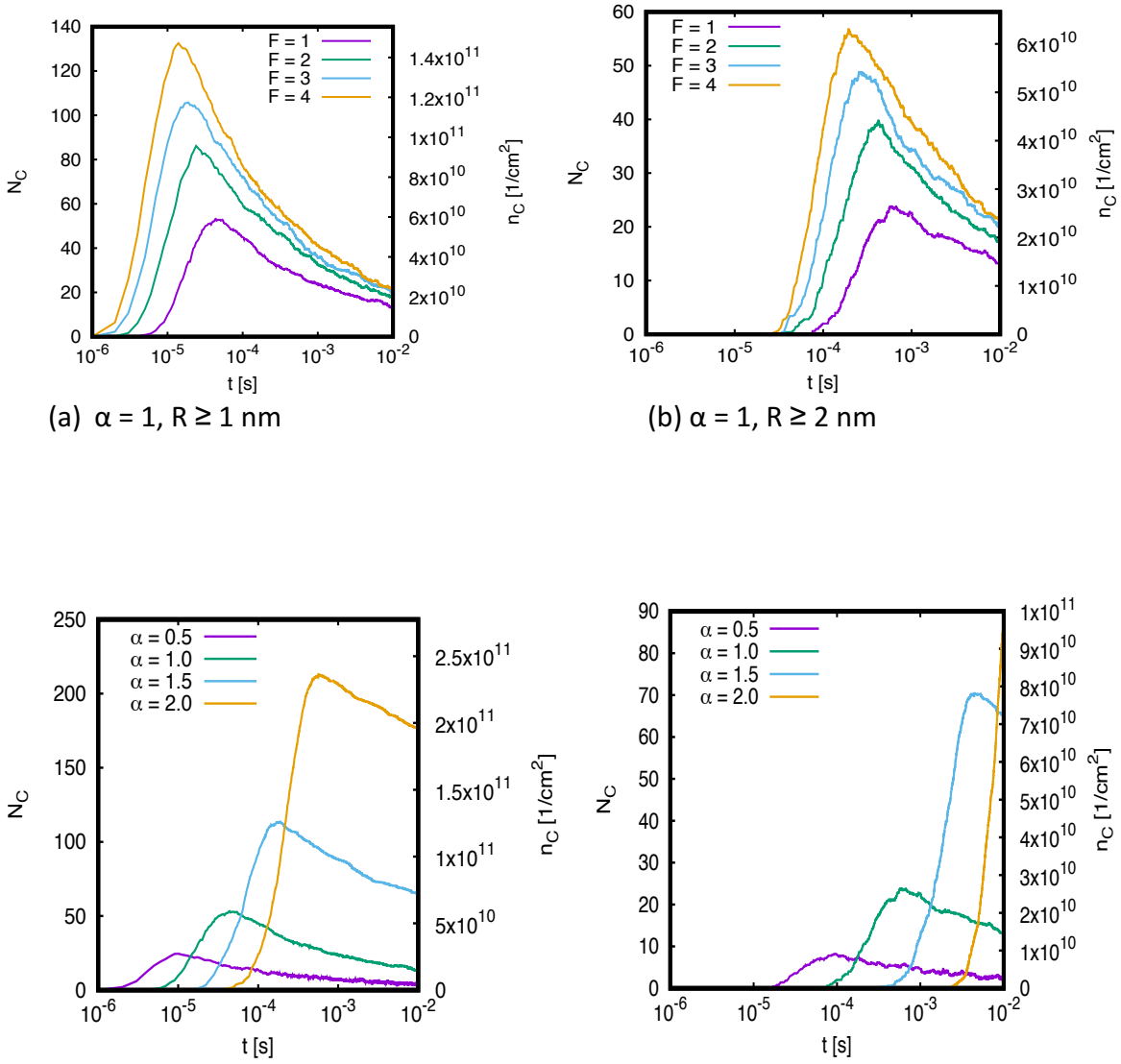
S1. Influence of the threshold size for defining a cluster on the early stages of cluster formation and aggregation

Figure S1 shows the evolution of the number and density of clusters as a function of time when all the clusters of R ≥ 1 nm (a) or of R ≥ 2 nm (b) are taken into account, for different values of F and α.



(a) α = 1, R ≥ 1 nm

(b) α = 1, R ≥ 2 nm

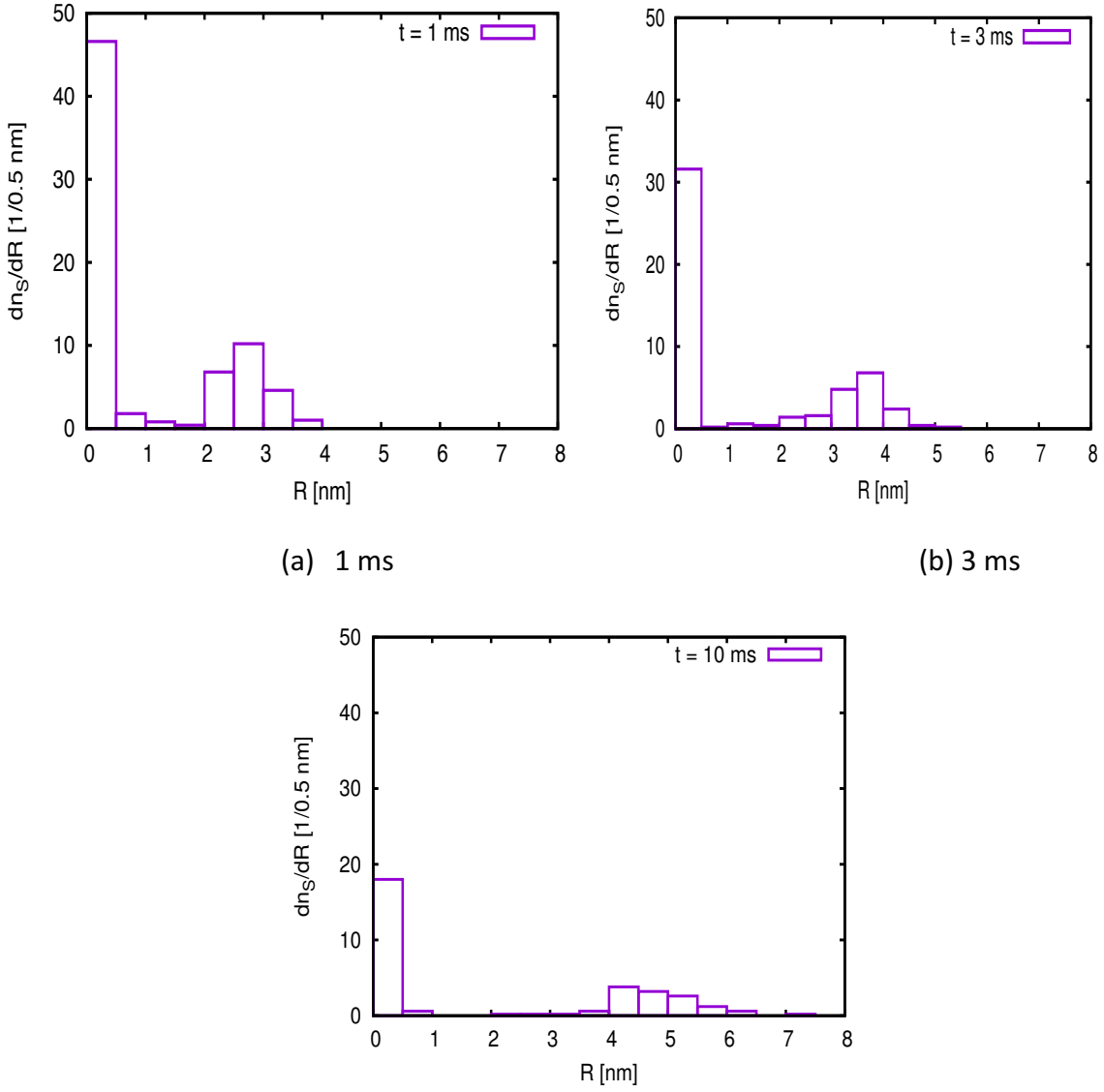
(c) F = 1, R ≥ 1 nm

(d) F = 1, R ≥ 2 nm

Figure S1. Evolution with time of the number of clusters and cluster density with α = 1 for different values of F (top) and with F = 1 and different values of α (bottom). All clusters with of R ≥ 1 nm are considered in (a) and (c) and all clusters with of R ≥ 2 nm (b) and (d).

S2. Influence of the relative surface mobility on the cluster size distributions

Figure S2 shows the histograms of the size distributions of all the individual particles as a function of time, for F = 1 and α = 1. Increasing the deposition time results in a larger dispersion of the particle sizes and in a decrease of the number of adatoms and small adatom aggregates.



(a) 1 ms (b) 3 ms

(c) 10 ms

Figure S2. Size distribution histogram for α = 1 and F = 1 after 1ms (a), 3ms (b) and 10ms (c).