Noise Phenomena Caused by Reversible Adsorption in Nanoscale Electrochemical Devices

Enno Kätelhön, Kay J. Krause, Klaus Mathwig, Serge G. Lemay, and Bernhard Wolfrum

Supporting Material 1

Detailed parameter tables for all simulations.

- Figure 1b

Number of active molecules	250
Spatial step width	5 nm
Diffusion constant	10^{-9} m^2/s
Temporal step width	12.5 ns
Number of iterations	$16*10^8$
Simulated time interval	20 s
Sum over iterations	800
Sampling frequency	100 kHz
Ratio between the average adsorbed and desorbed time	20
Number of traces averaged	6

- Figure 2b

Number of active molecules	200
Spatial step width	5 nm
Diffusion constant	$6.7*10^{-10}$ m^2/s
Temporal step width	18.66 ns
Number of iterations	$107.2*10^8$
Simulated time interval	200 s
Sum over iterations	5360
Sampling frequency	10 kHz
Number of traces averaged	10

- Figure 2c/d

Number of active molecules	200
Spatial step width	5 nm
Diffusion constant	$6.7*10^{-10}$ m^2/s
Temporal step width	18.66 ns
Number of iterations	$107.2*10^8$
Simulated time interval	200 s

Sum over iterations	5360
Sampling frequency	10 kHz
Ratio between the average adsorbed and desorbed time	3.37
Number of traces averaged	10

- Figure 3c

Number of active molecules	500
Spatial step width	10 nm
Diffusion constant	10^{-9} m^2/s
Temporal step width	50 ns
Number of iterations	$12*10^8$
Simulated time interval	60 s
Sum over iterations	600
Sampling frequency	33.3 kHz
Ratio between the average adsorbed and desorbed time	20
Number of traces averaged	20

- Figure 3d

Number of active molecules	500
Spatial step width	50 nm
Diffusion constant	10^{-9} m^2/s
Temporal step width	1.25 s
Number of iterations	$3.2*10^8$
Simulated time interval	400 s
Sum over iterations	160
Sampling frequency	5 kHz
Ratio between the average adsorbed and desorbed time	20
Number of traces averaged	20