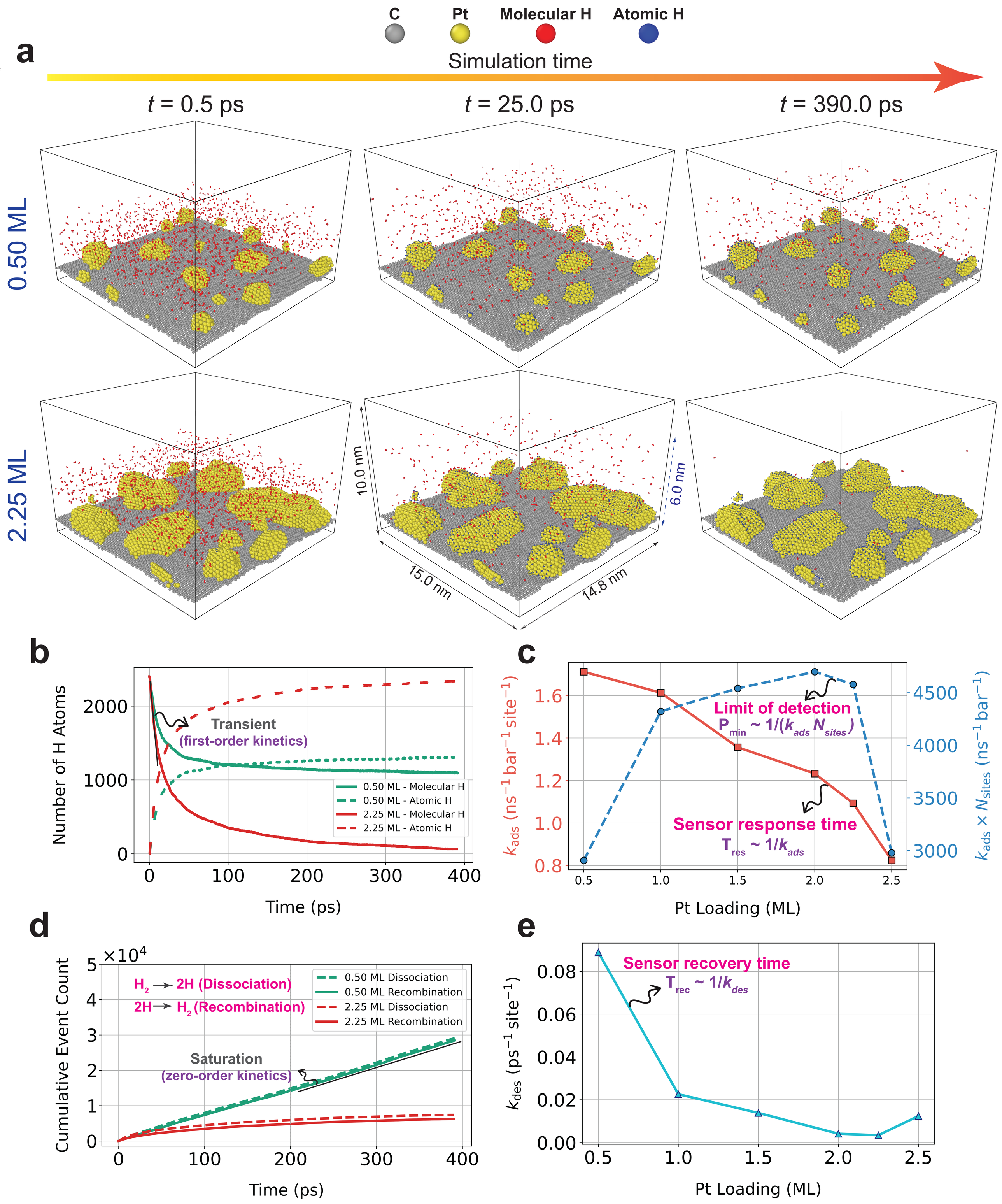
a
C
Pt
Molecular H
Atomic H
Simulation time
t = 0.5 ps
t = 25.0 ps
t = 390.0 ps
0.50 ML
2.25 ML
10.0 nm
15.0 nm
14.8 nm
6.0 nm
b
Number of H Atoms
Time (ps)
Transient
(first-order kinetics)
0.50 ML - Molecular H
0.50 ML - Atomic H
2.25 ML - Molecular H
2.25 ML - Atomic H
c
Pt Loading (ML)
Limit of detection
P_min ~ 1/(k_ads N_sites)
Sensor response time
T_res ~ 1/k_ads
d
Cumulative Event Count
×10^4
H2 → 2H (Dissociation)
2H → H2 (Recombination)
0.50 ML Dissociation
0.50 ML Recombination
2.25 ML Dissociation
2.25 ML Recombination
Saturation
(zero-order kinetics)
Time (ps)
e
Sensor recovery time
T_rec ~ 1/k_des
Pt Loading (ML)