Supplementary Information

Self-supervised learning of physical principles of a metal oxide semiconductor capacitor

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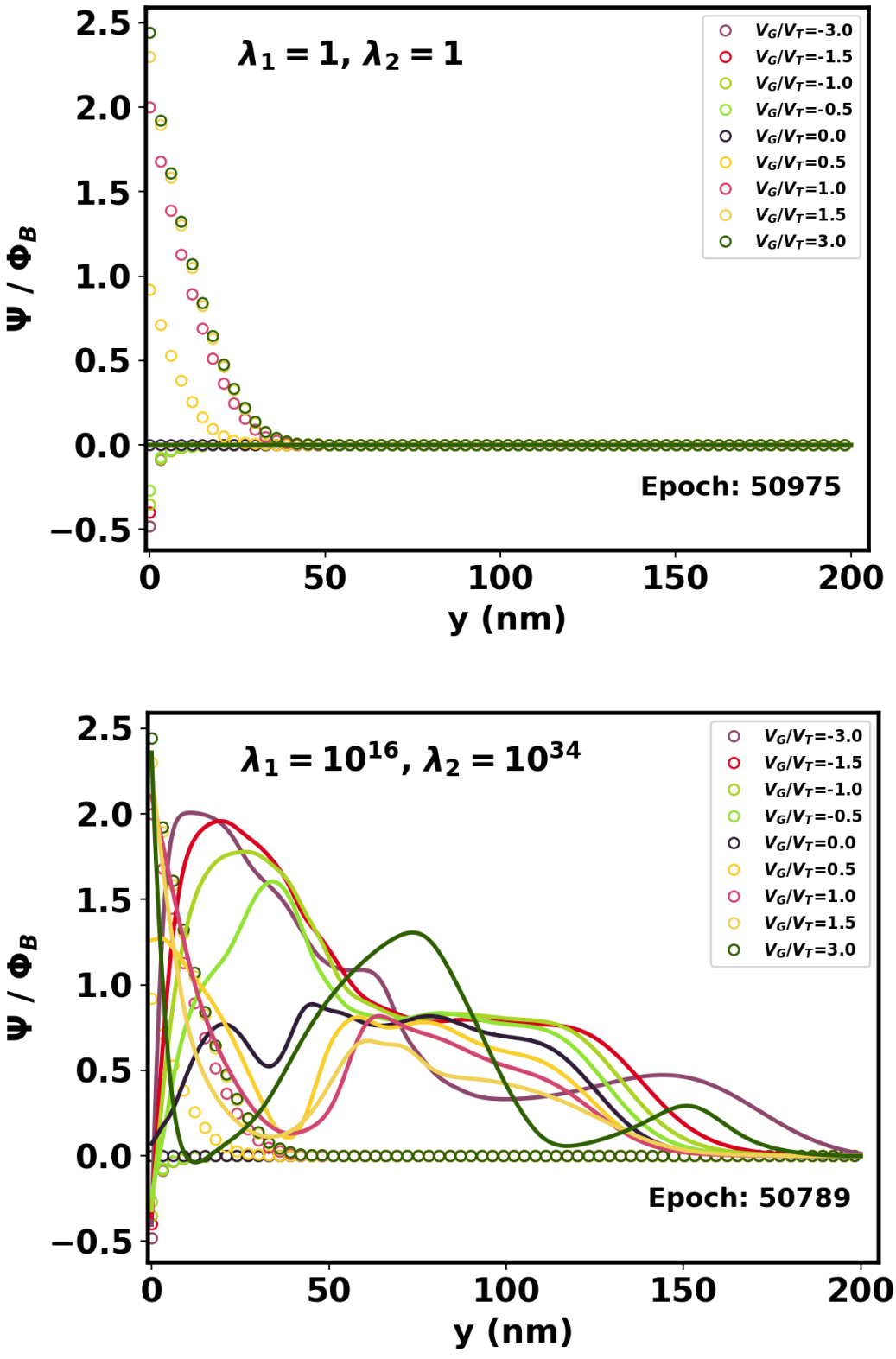

Figure S1: Model and numerical predictions after 50k Epochs for PINN model with 50 neurons per layer and 3 hidden layers for N_A=1x10^{24} m^{-3} and t_{ox}=1.5 nm with different set of λ_1 and λ_2. Lines represent model predictions and circles are the numerical simulations.

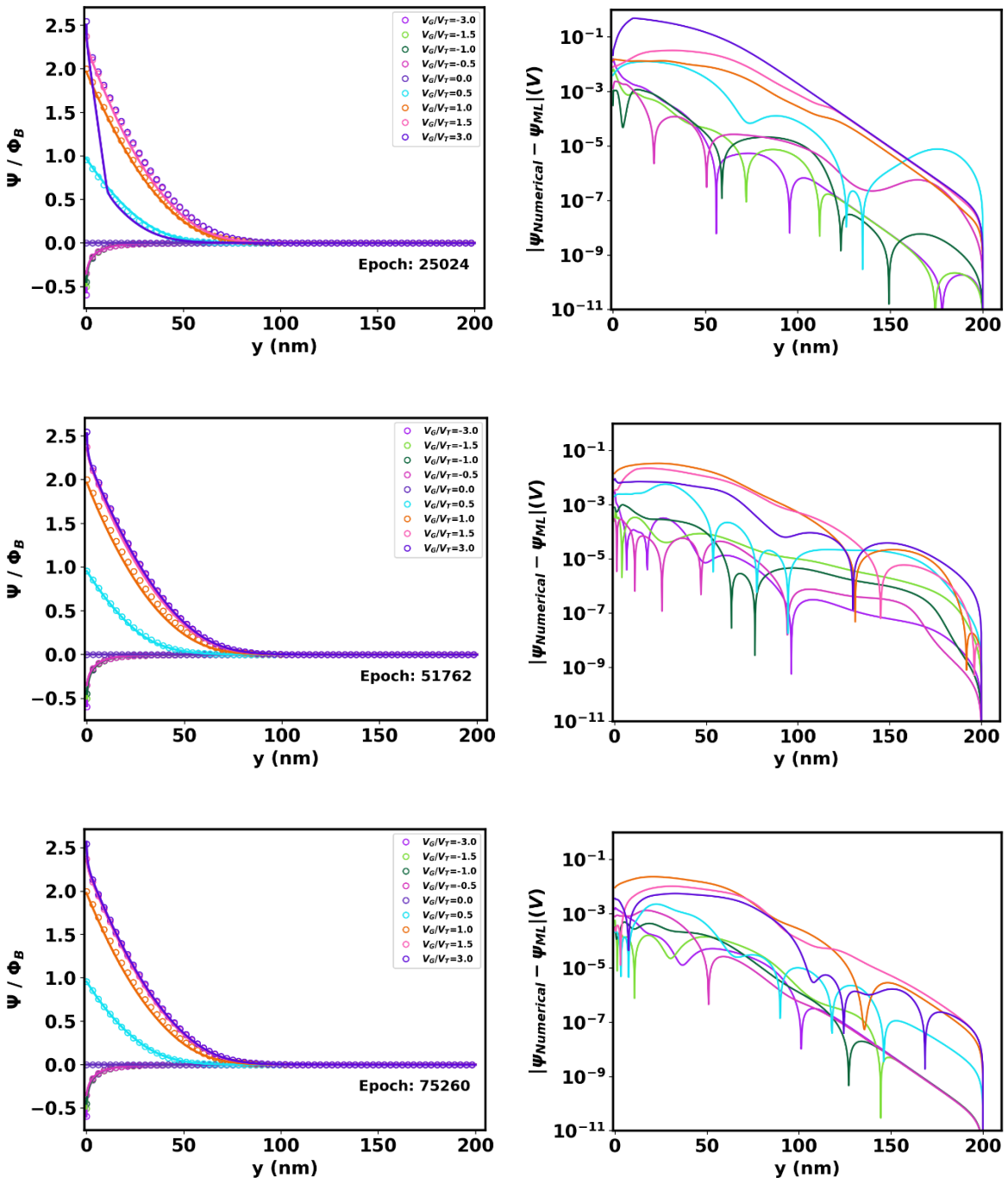

Figure S2: In left column: Model and numerical predictions for N_A=2x10^{23} m^{-3} and t_{ox}=1.5 nm. Lines represent model predictions and circles are the numerical simulations. In right column: corresponding error

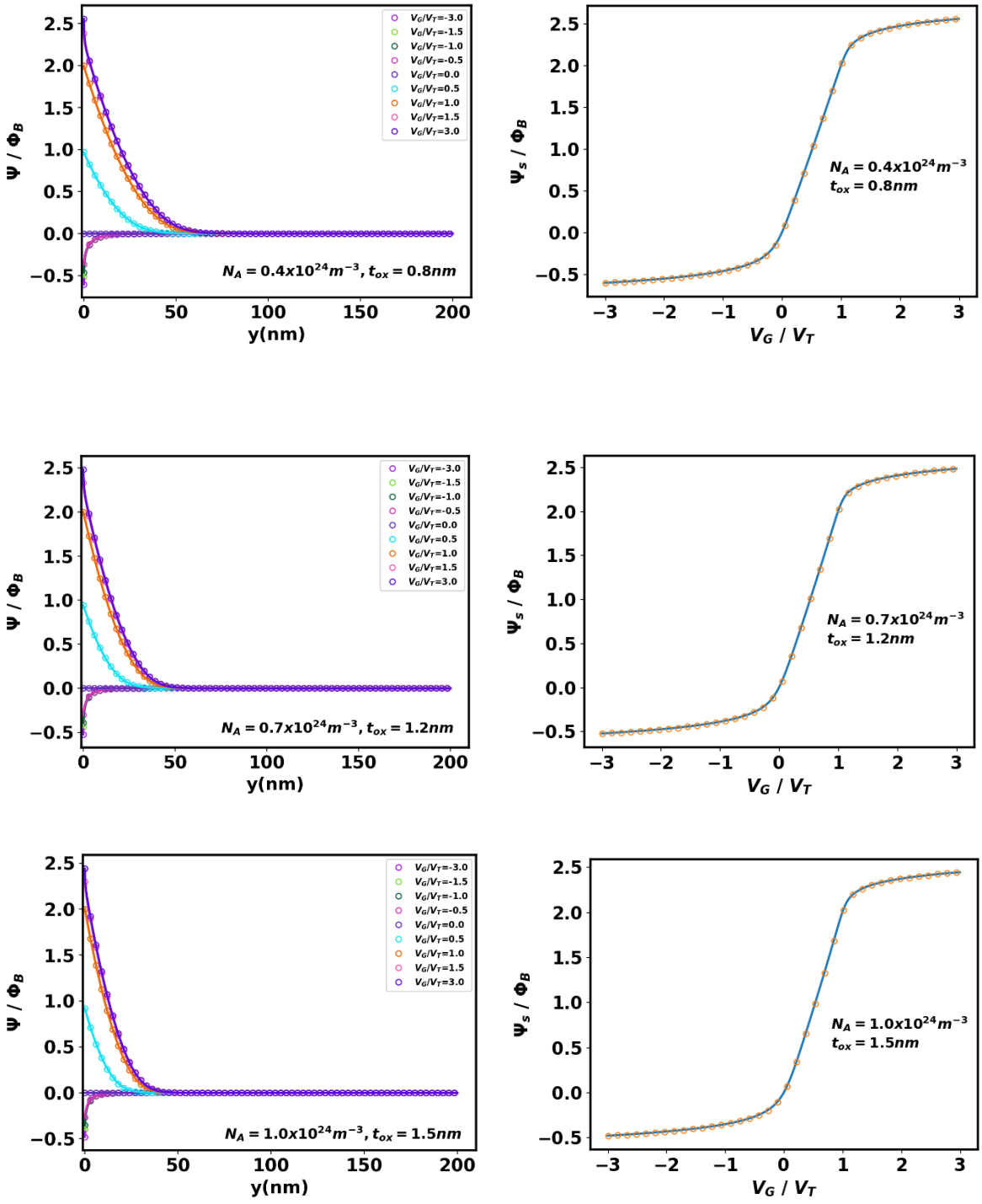

Figure S3: Model and numerical predictions for different values of N_A and t_{ox}. Lines represent model predictions and circles are the numerical simulations. In left column: electrostatic potential inside the bulk, In right column: corresponding surface potential.

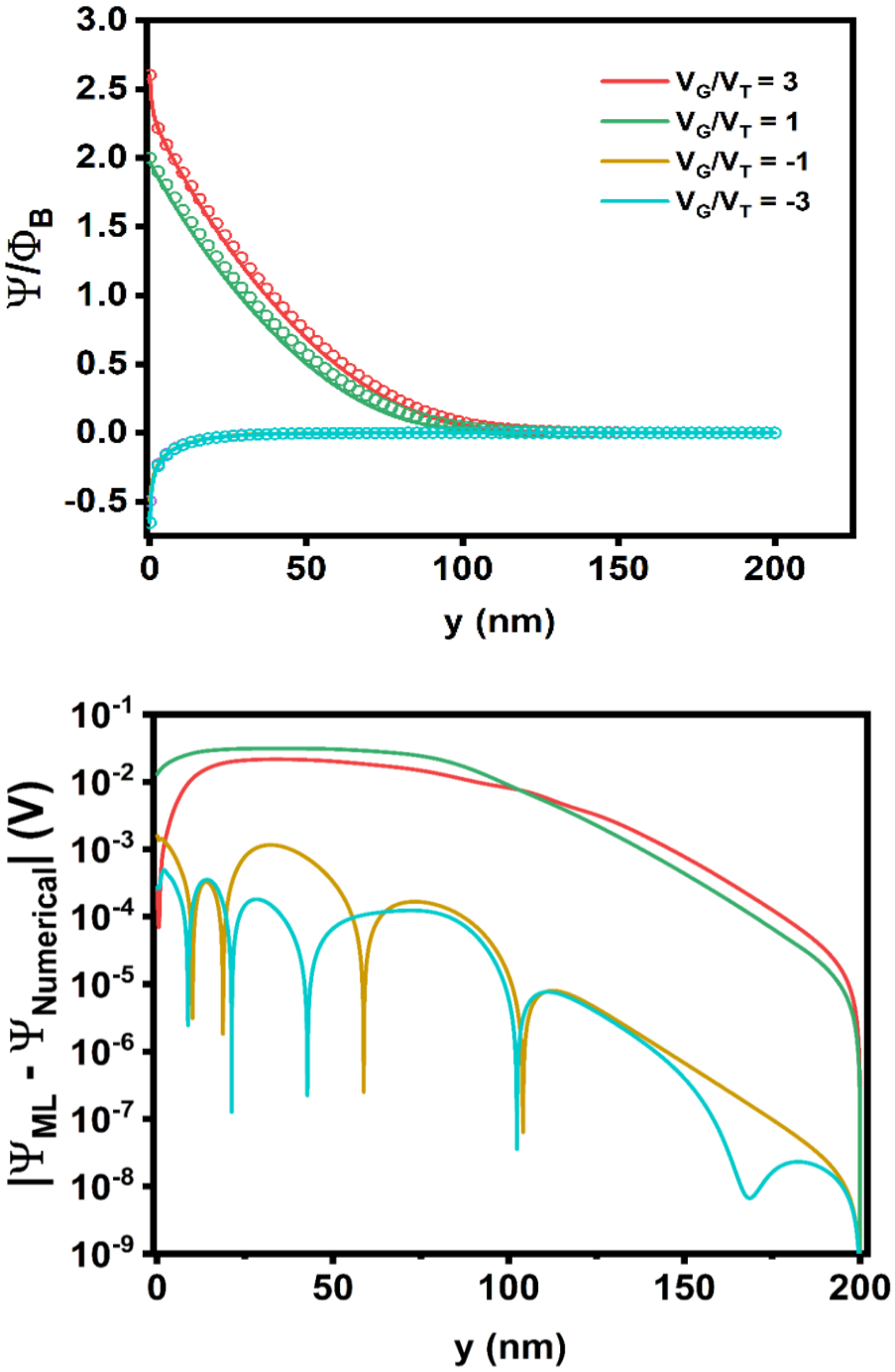

Figure S4: Model and numerical predictions for $N_A=10^{23}$ m^{-3} and $t_{ox}=1.5$ nm along with absolute error in between them. Lines represent model predictions and circles are the numerical simulations.

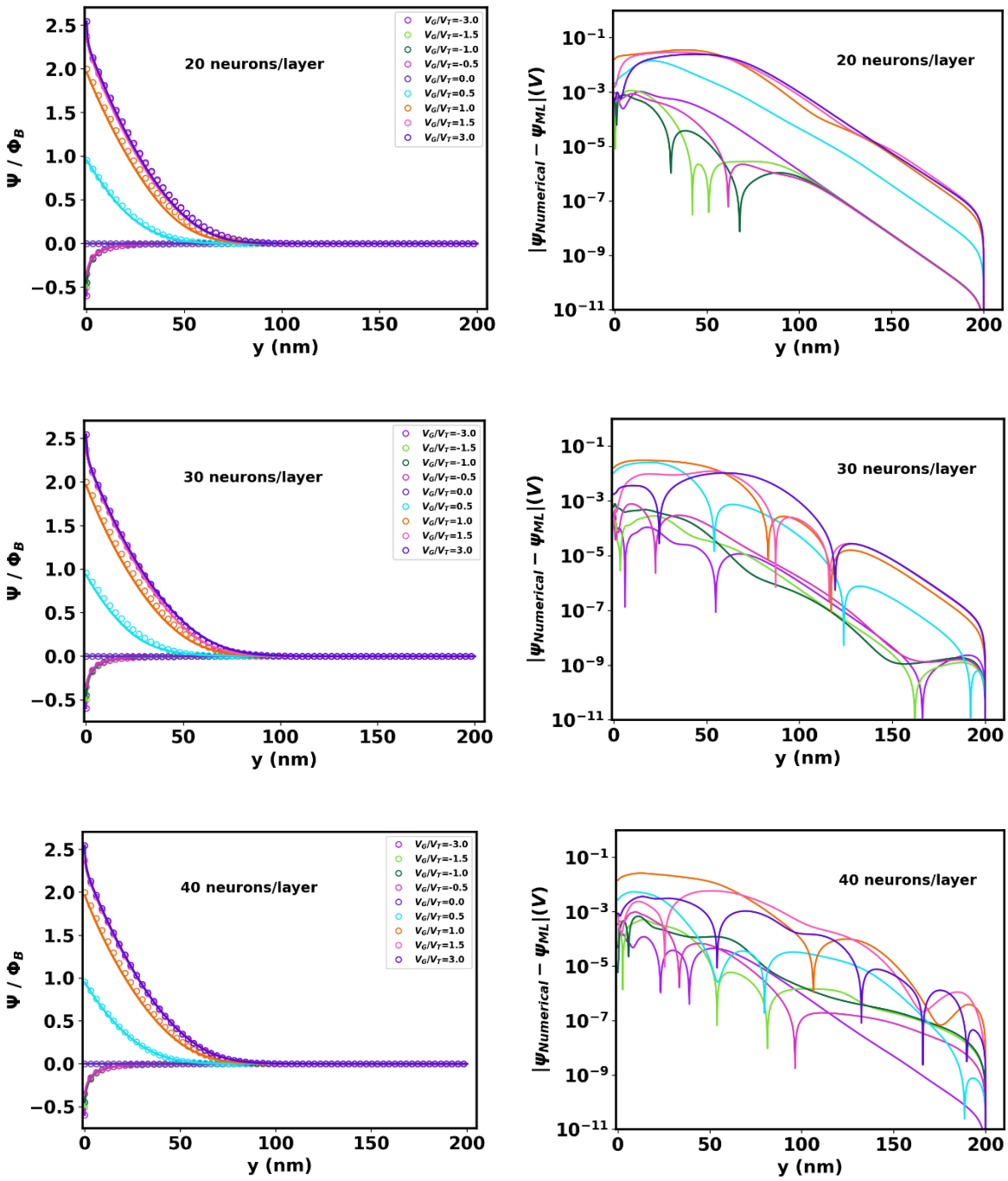

Figure S5: In left column: Model and numerical predictions after 140k Epochs for model with different neurons per layer and 3 hidden layers, for N_A=2x10^{23} m^{-3} and t_{ox}=1.5 nm. Lines represent model predictions and circles are the numerical simulations. In right column: absolute error in between model and numerical simulations.