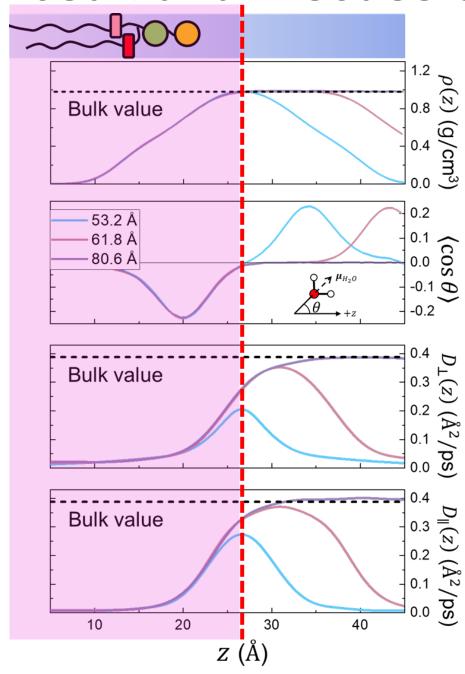
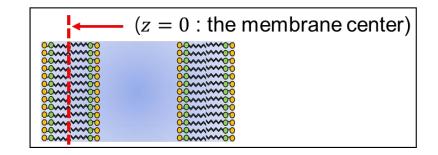
## **Result and Discussion**





 $\leftarrow$  density  $(\rho_{H_2O})$ 

PB Moore et al., Biophysical Journal, 81, 2484-2494 (2001)

JS Hub et al., Biophysical Journal, 93, 9, 3156-3168 (2007)

- Water alignment information ( $\langle \mu_{H_2O,z} 
angle / \langle \mu_{H_2O} 
angle$ )

JA Mondal et al., J. Am. Chem. Soc., 134, 18, 7842-7850 (2012)

LB Dreier et al., J. Phys. Chem. Lett., 10, 20, 6355-6359 (2019)

 $lue{}$  Vertical Diffusion Coefficient  $(D_{\perp}(z))$ 

 $D_{\perp}(z) \rightarrow$  determined from 'mean first passage time'.

Y von Hansen et al., Phys. Rev. Lett., 111, 118103 (2013)

 $\leftarrow$  Lateral Diffusion Coefficient  $(D_{\parallel}(z))$ 

 $D_{\parallel}(z) \rightarrow$  determined from 'result of umbrella sampling method'.

Y von Hansen et al., Phys. Rev. Lett., 111, 118103 (2013)

