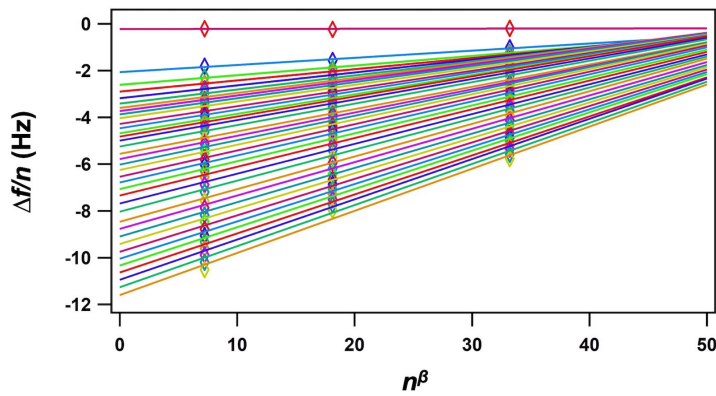


**Figure S1.** Changes in frequency and dissipation ( $n = 3, 5, 7$ ) as a function of time during water adsorption onto C8 SAM.



**Figure S2.** Determination of the mass of adsorbed water by extrapolation of  $\Delta f/n$  to the zeroth overtone. Data show normalized frequency shifts of different overtones as a function of  $n^\beta$ . ( $n = 3, 5, 7$ ). For simplicity, only a part of the data is shown here. Note that the data with larger frequency shifts show positive slopes of extrapolating lines, implying the underestimation of adsorbed mass using the Sauerbrey equation.