



Supplementary Figure S1. Calculated 4-th order normalized Fourier coefficient $\xi_4(d_0)$ as a function of the average antenna-tip distance d_0 . The amplitude of the distance modulation Δd is 70nm, as in the experiment. $\xi_4(d_0)$ is shown for three different antennas, one in resonance ($L = 3.8\mu\text{m}$, dashed blue line) and two out of resonance ($L = 2.4\mu\text{m}$, solid red line; $L = 5\mu\text{m}$, circles). The inset shows the location where $\xi_4(d_0)$ is calculated. This behavior validates the assumption of equal decay of $\xi_4(d_0)$ for all antennas.