



**Figure S1.** High resolution s-SNOM topography and amplitude images showing outer viral envelop and the inner structure of a single influenza virus. (a) Topography of a virus particle and (b) 3<sup>rd</sup> harmonic near-field amplitude image taken at 1045 cm<sup>-1</sup> showing contrast difference between the outer viral HA protein and the inner structure of the virus. (c) Topography and amplitude line profiles. Scale bar is 100 nm.