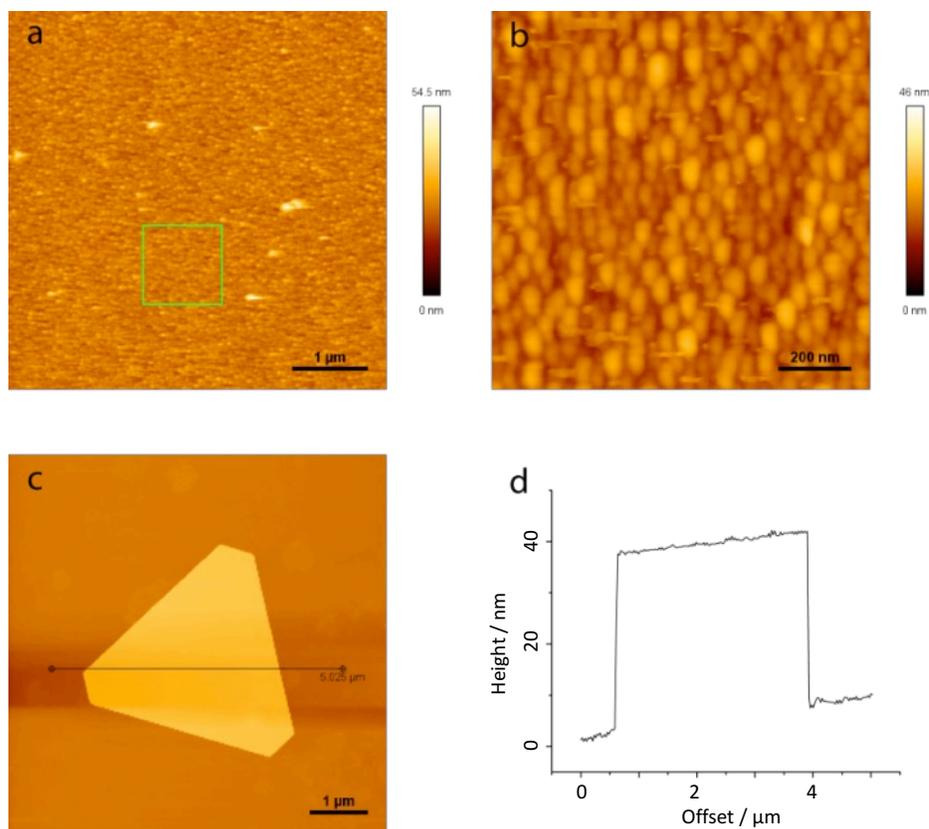
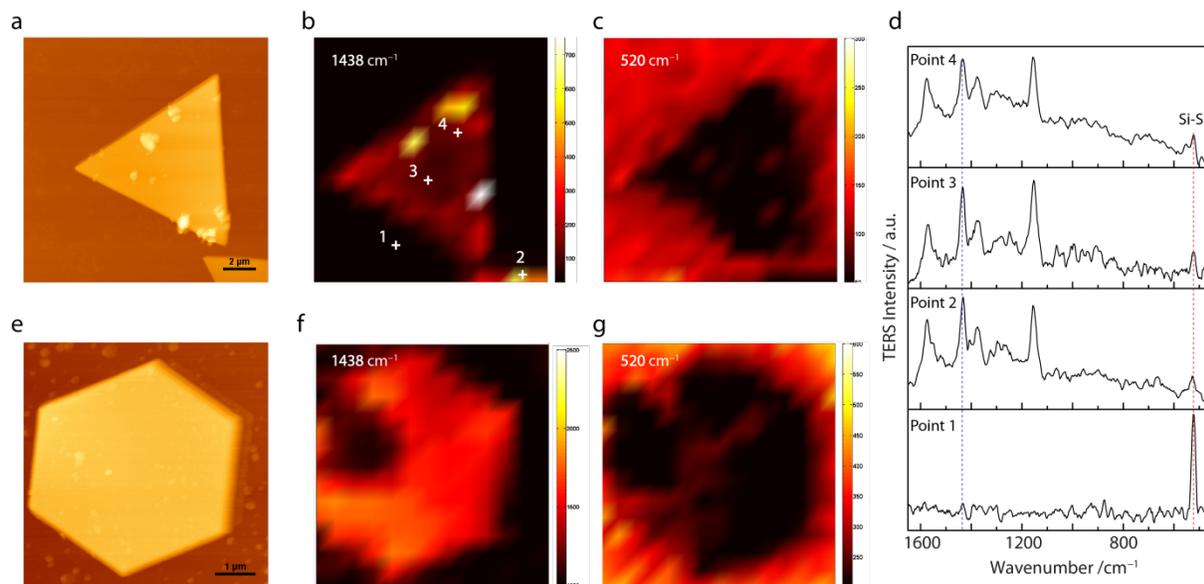


### Supporting Information



**Figure S1.** **a)** AFM image of a film composed of silver particles acting as a SERS substrate. **b)** AFM image of silver nanoparticles corresponding to the green square in a. **c)** AFM image of a single gold nanoplate. **d)** Height profile on the gold nanoplate corresponding to the black line in c.

## TERS mapping of D3ATP coupling.



**Figure S2.** TERS mapping of polymerization reaction of D3ATP on gold nanoplate. **a**, AFM image of a selected gold triangle nanoplate. **b**) TERS mapping ( $15 \times 15$ ) of  $1438 \text{ cm}^{-1}$  related to the bond of  $-\text{N}=\text{N}-$  from the polymerization products. **c**) TERS mapping ( $15 \times 15$ ) of  $520 \text{ cm}^{-1}$  related to the bond of Si-Si from silver TERS tip. **d**) The TERS spectra corresponding to the white points in **b**. **e**) AFM image of a selected gold hexagon nanoplate. **f**) and **g**) TERS mapping ( $15 \times 15$ ) of  $1438$  and  $520 \text{ cm}^{-1}$ , respectively.