

# FIGURES

Figure 1

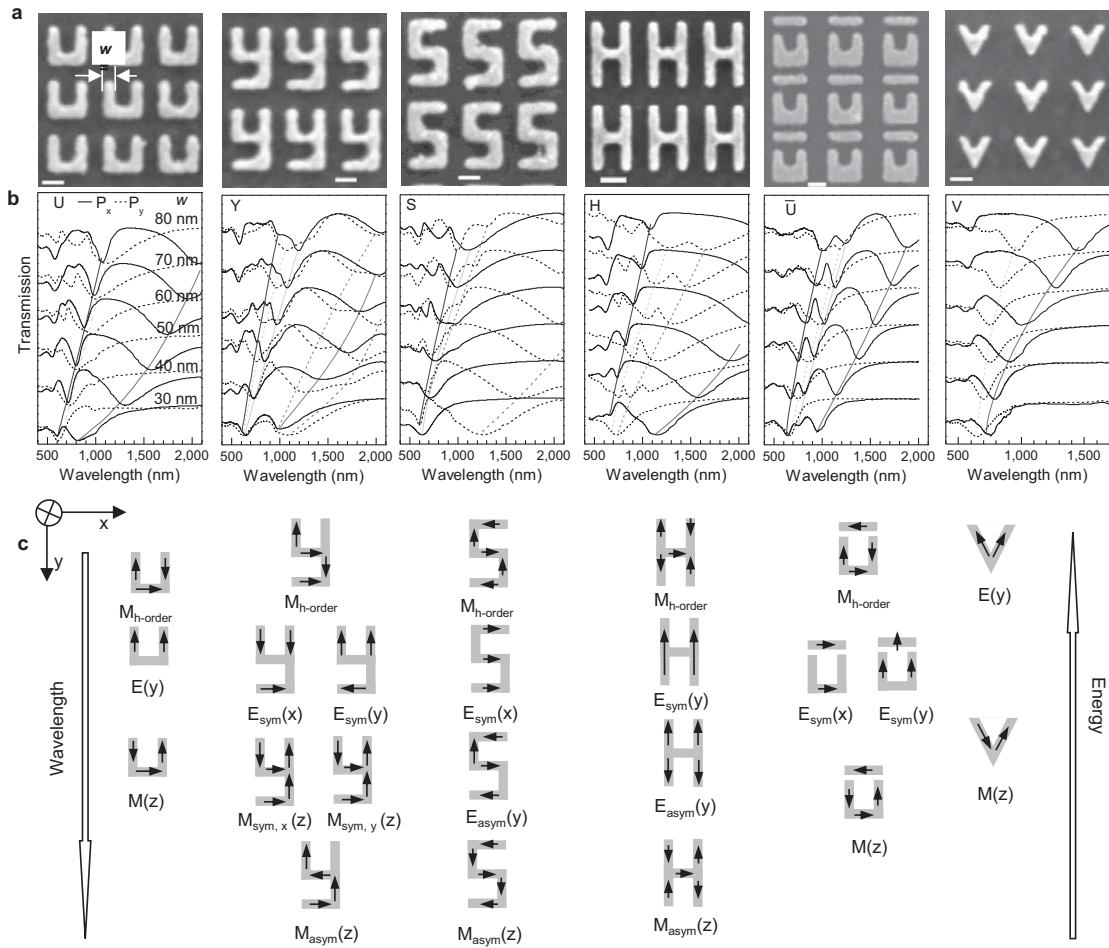


Figure 2

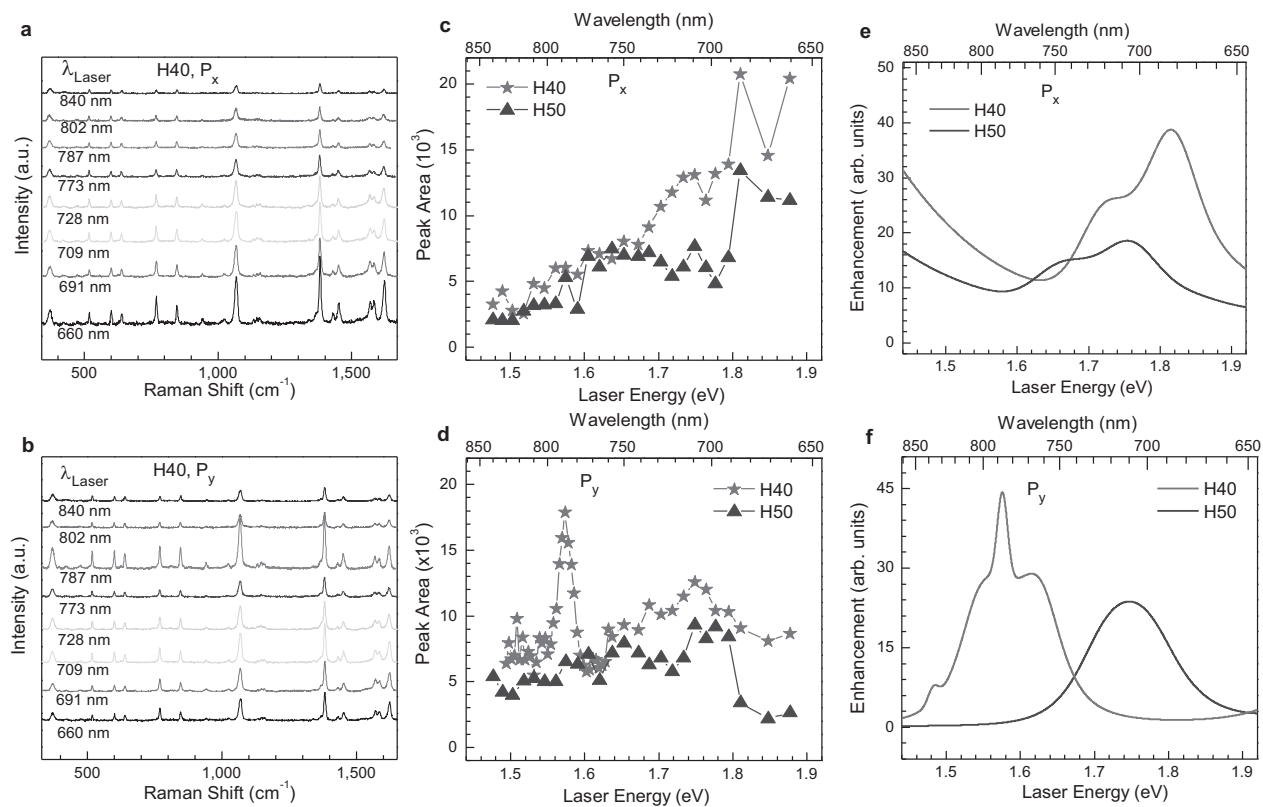


Figure 3

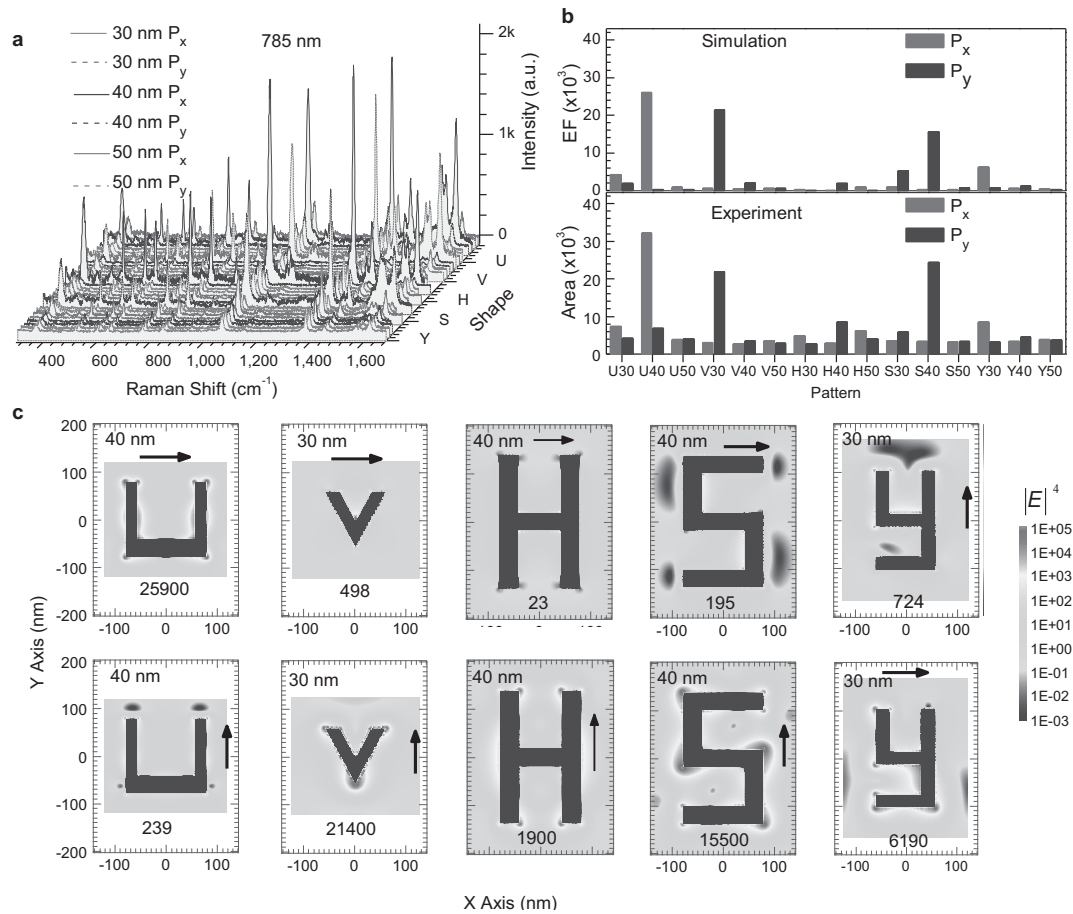


Figure 4

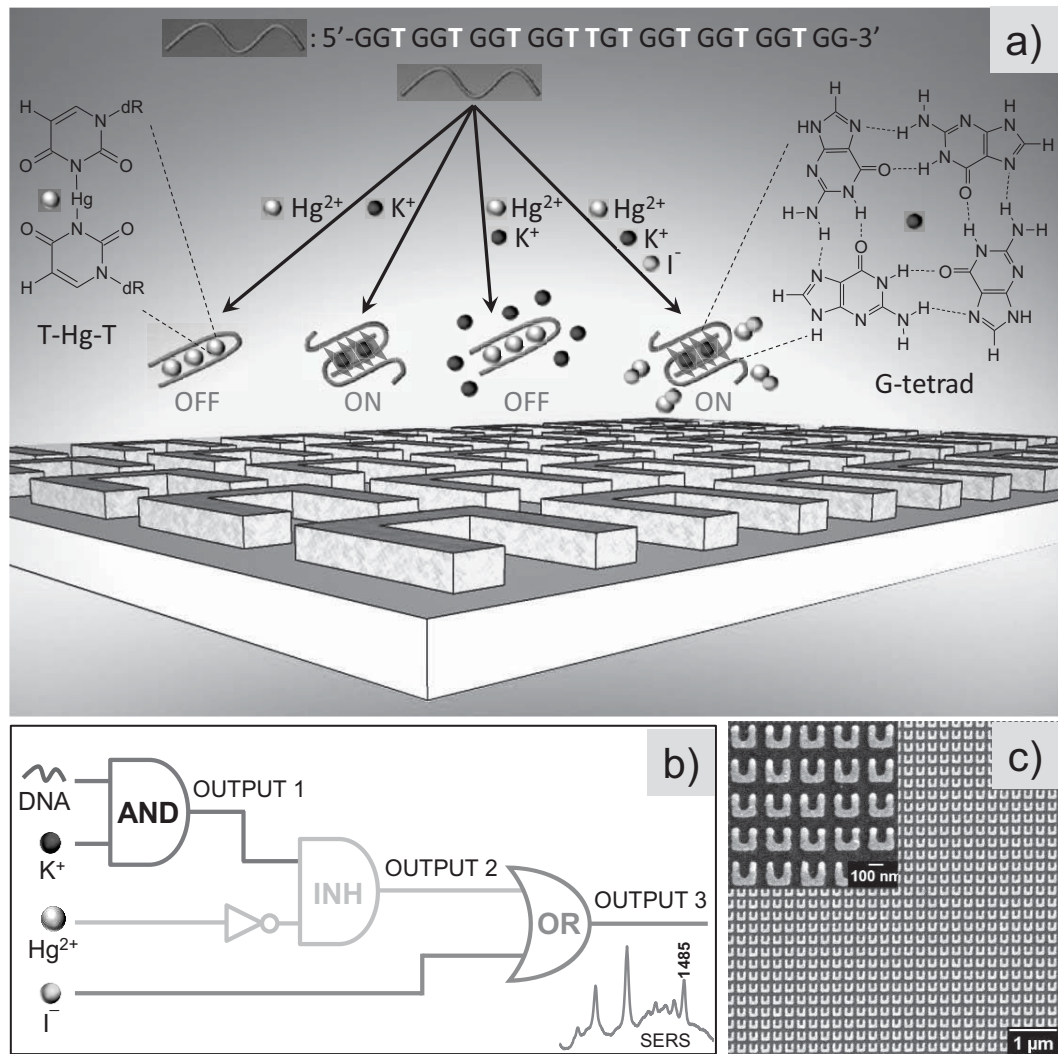


Figure 5

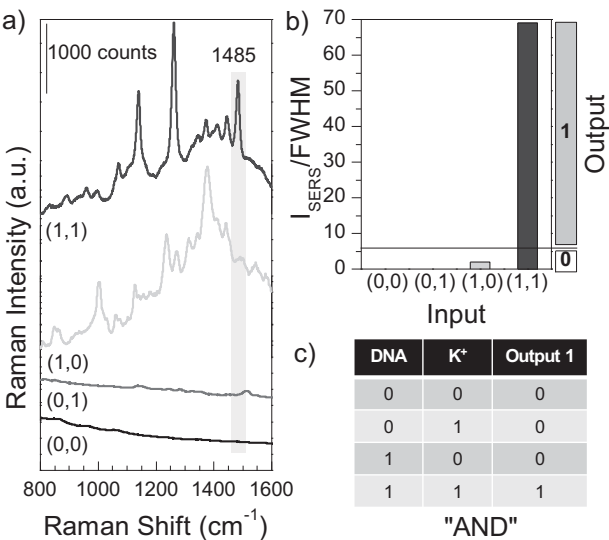


Figure 6

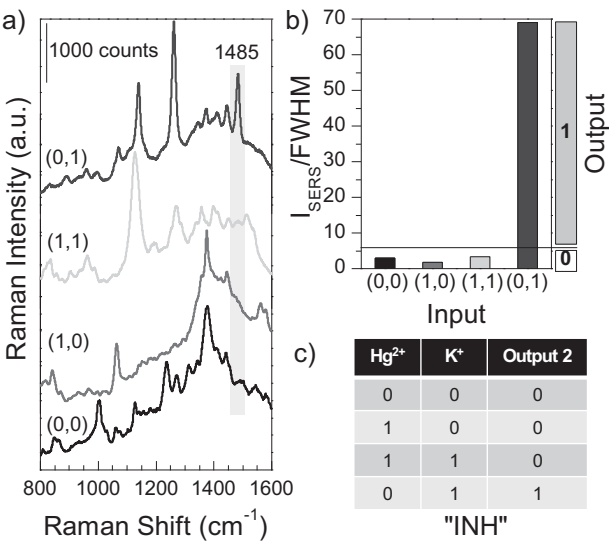


Figure 7

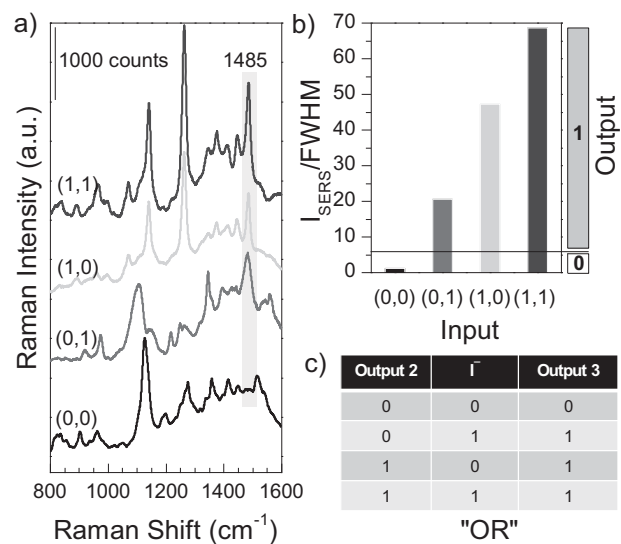


Figure 8

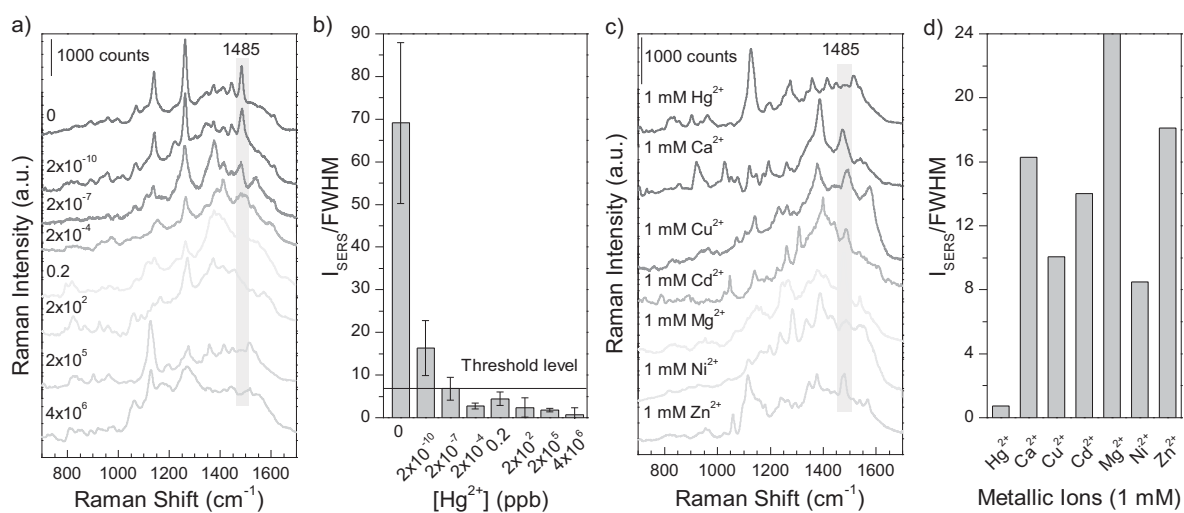
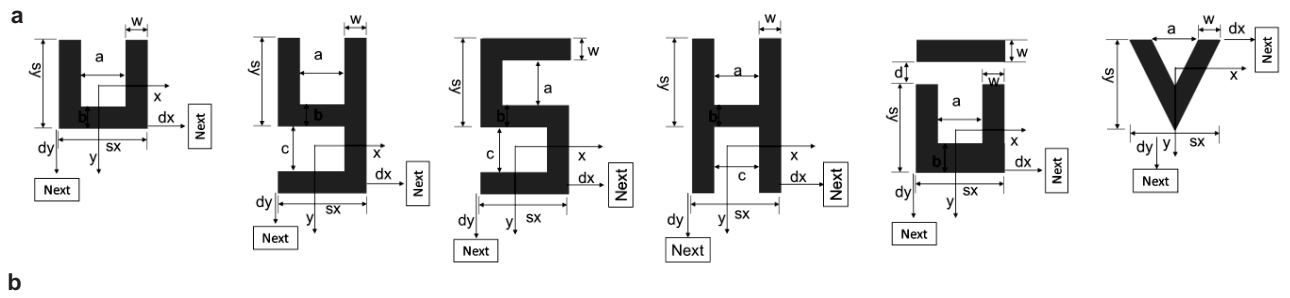


Figure 9



| U  | (nm) | Y  | (nm) | S  | (nm) | H  | (nm) | Ubar | (nm) | V  | (nm) |
|----|------|----|------|----|------|----|------|------|------|----|------|
| a  | 160  | a  | 160  | a  | 160  | a  | 160  | a    | 160  | a  | 160  |
| b  | 80   | b  | 80   | b  | 80   | b  | 80   | b    | 128  | w  | 80   |
| w  | 80   | w  | 80   | w  | 80   | w  | 80   | w    | 80   | sx | 320  |
| sx | 320  | sx | 320  | sx | 320  | sx | 320  | sx   | 320  | sy | 320  |
| sy | 320  | sy | 320  | sy | 320  | sy | 320  | sy   | 320  | dx | 160  |
| dx | 160  | dx | 160  | dx | 160  | dx | 160  | dx   | 240  | dy | 160  |
| dy | 160  | dy | 160  | dy | 160  | dy | 160  | dy   | 96   |    |      |
|    |      |    |      |    |      |    |      | d    | 96   |    |      |

Figure 10

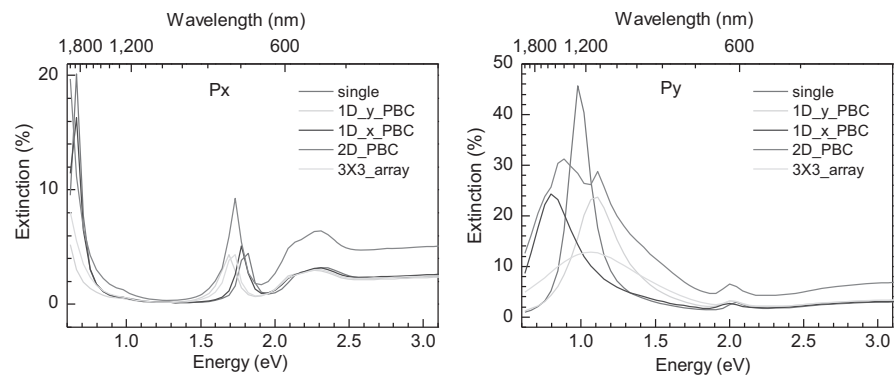


Figure 11

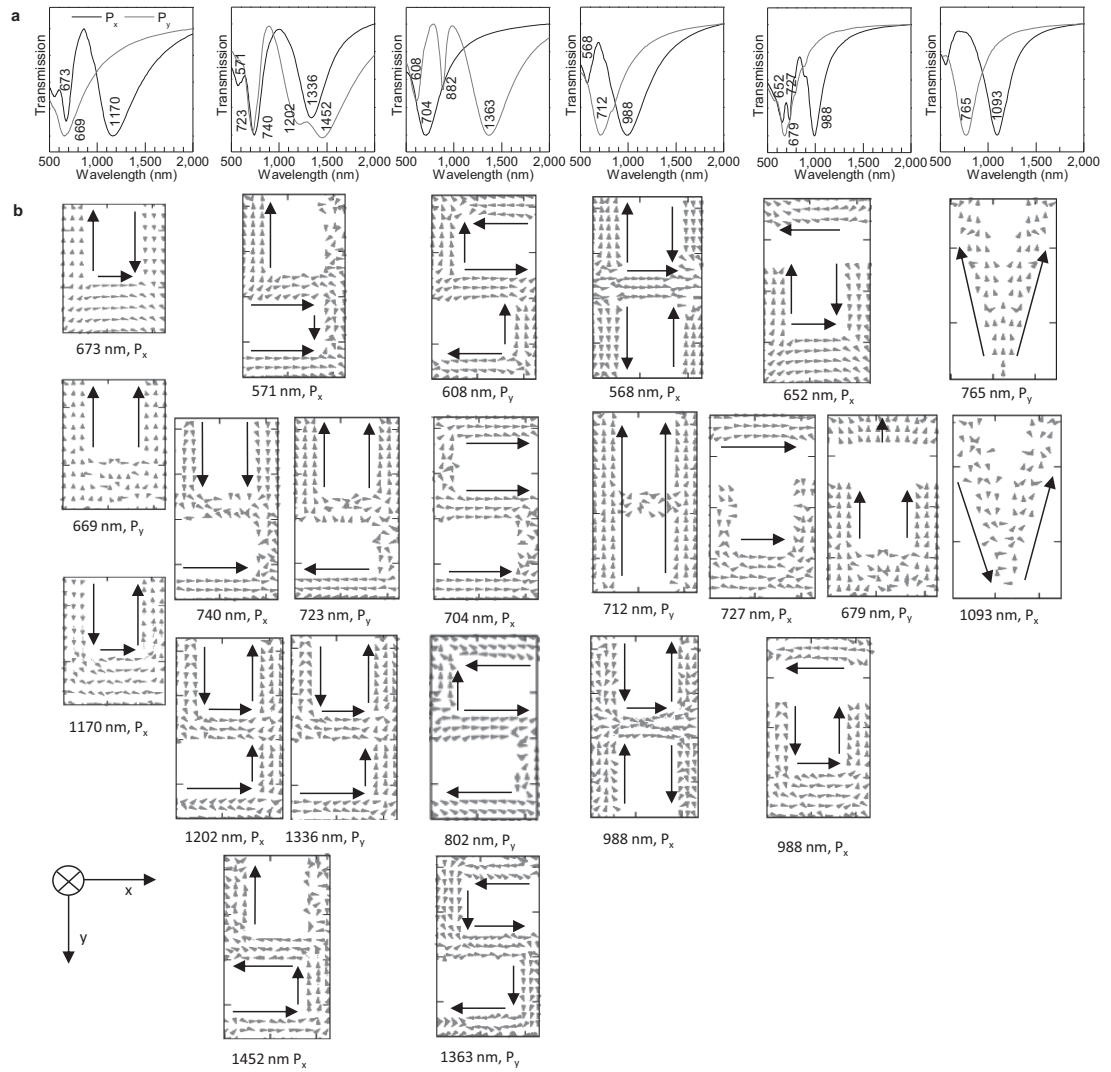


Figure 12

| Pattern | $h$<br>(1mm) | $P_x(785\text{nm}, 1380\text{ cm}^{-1})$ |                      |                   | $P_y(785\text{nm}, 1380\text{ cm}^{-1})$ |                      |                   |
|---------|--------------|------------------------------------------|----------------------|-------------------|------------------------------------------|----------------------|-------------------|
|         |              | $I_{\text{SERS}}/I_{\text{bulk}}$        | $R_{\text{lattice}}$ | $\text{EF}(10^7)$ | $I_{\text{SERS}}/I_{\text{bulk}}$        | $R_{\text{lattice}}$ | $\text{EF}(10^7)$ |
| S30     | 1            | 7.08                                     | 0.53                 | 2.48              | 12.92                                    | 0.53                 | 4.53              |
| S40     | 1            | 1.88                                     | 0.53                 | 0.66              | 20.89                                    | 0.32                 | 12.14             |
| S50     | 1            | 3.10                                     | 0.53                 | 1.09              | 3.05                                     | 0.53                 | 1.07              |
| H30     | 1            | 9.28                                     | 0.53                 | 3.26              | 4.51                                     | 0.53                 | 1.58              |
| H40     | 1            | 10.31                                    | 0.53                 | 3.62              | 19.21                                    | 0.53                 | 6.76              |
| H50     | 1            | 8.06                                     | 0.53                 | 2.83              | 2.60                                     | 0.53                 | 0.91              |
| V30     | 1            | 3.32                                     | 0.32                 | 1.93              | 18.7                                     | 0.32                 | 10.56             |
| V40     | 1            | 2.64                                     | 0.32                 | 1.53              | 3.38                                     | 0.53                 | 1.19              |
| V50     | 1            | 4.11                                     | 0.32                 | 2.39              | 4.45                                     | 0.53                 | 1.56              |
| Y30     | 1            | 12.37                                    | 0.32                 | 7.19              | 0.37                                     | 0.53                 | 0.13              |
| Y40     | 1            | 4.14                                     | 0.53                 | 1.45              | 14.02                                    | 0.53                 | 4.92              |
| Y50     | 1            | 5.61                                     | 0.53                 | 1.97              | 5.87                                     | 0.53                 | 2.06              |

Figure 13

