

# Toward a scalable single photon platform

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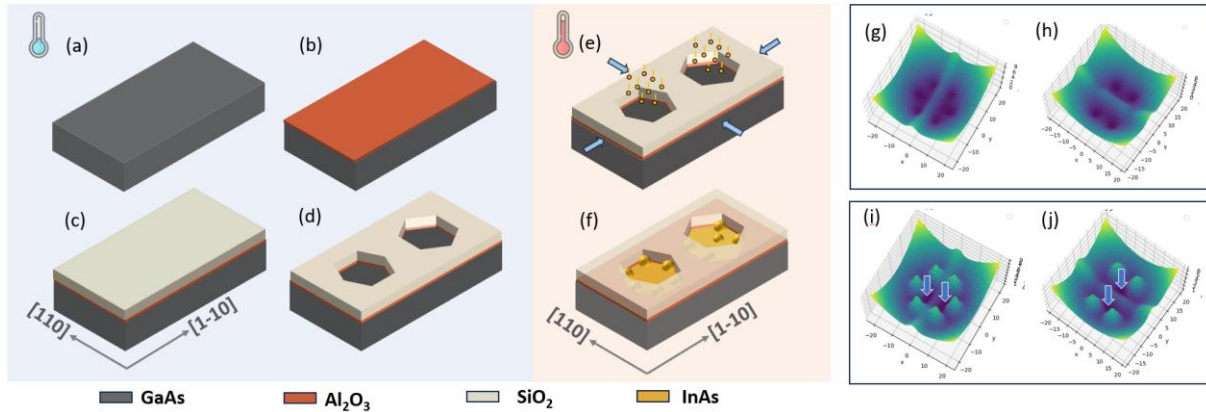


Figure 1: (a)-(d) Fabrication procedure for the site-controlled QD growth template at lower temperatures. The hexagon pockets in two different orientations were laid on the mask that are 90 degrees from each other. This accounts for the two crystal orientations with  $[1\ 1\ 0]$  being the slow diffusion axis. The pocket width varies from 7 to 10  $\mu\text{m}$ . (e) and (f) show the simplified QD growth process at elevated temperatures. Hexagon pockets alter the local strain profile, resulting in local potential energy minima that would host site-specific QD nucleation. (g) and (h) are the qualitative potential energy profiles prior to QD deposition with minima at the vertices of the pockets. (i) and (j) are the post-QD deposition potential energy profiles. Original minima become maxima, defining new minima near the pocket center.

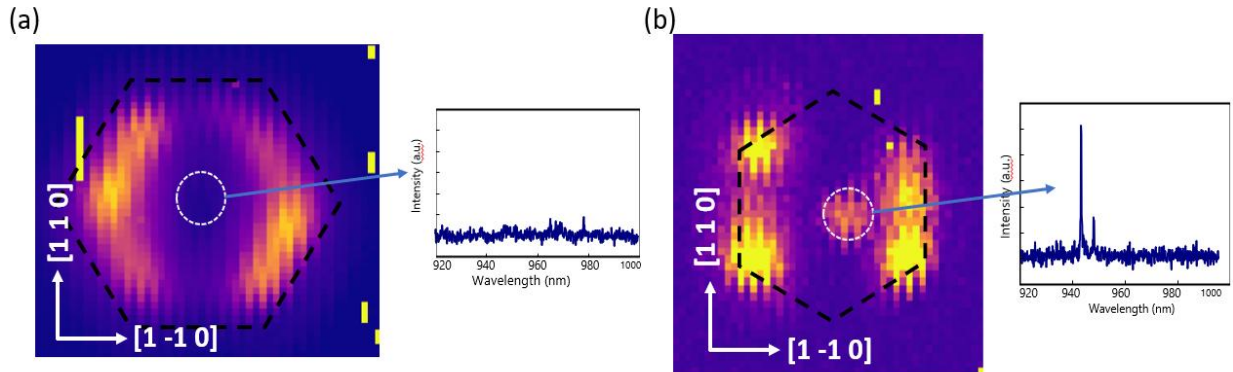


Figure 2: (a) and (b) are the hyperspectral images of QDs nucleated in hexagonal pockets in two different orientations. The distance between the opposite vertices is 7  $\mu\text{m}$ .