Two-dimensional square and hexagonal oxide quasicrystal approximants in SrTiO$_3$ films grown on Pt(111)/Al$_2$O$_3$(0001)

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Supporting Information Available

(a) (b)

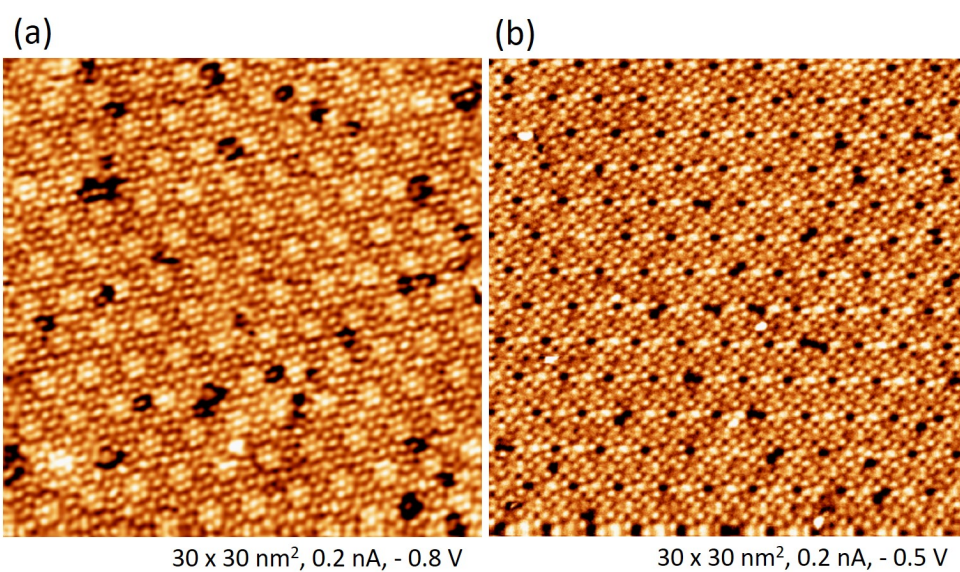30 x 30 nm², 0.2 nA, - 0.8 V 30 x 30 nm², 0.2 nA, - 0.5 V

Figure 1: STM images of the two variants of the hexagonal approximant. The variant shown in (a) has a central protrusion at the center of the dodecagonal motifs while the one shown in (b) has a vacancy instead.
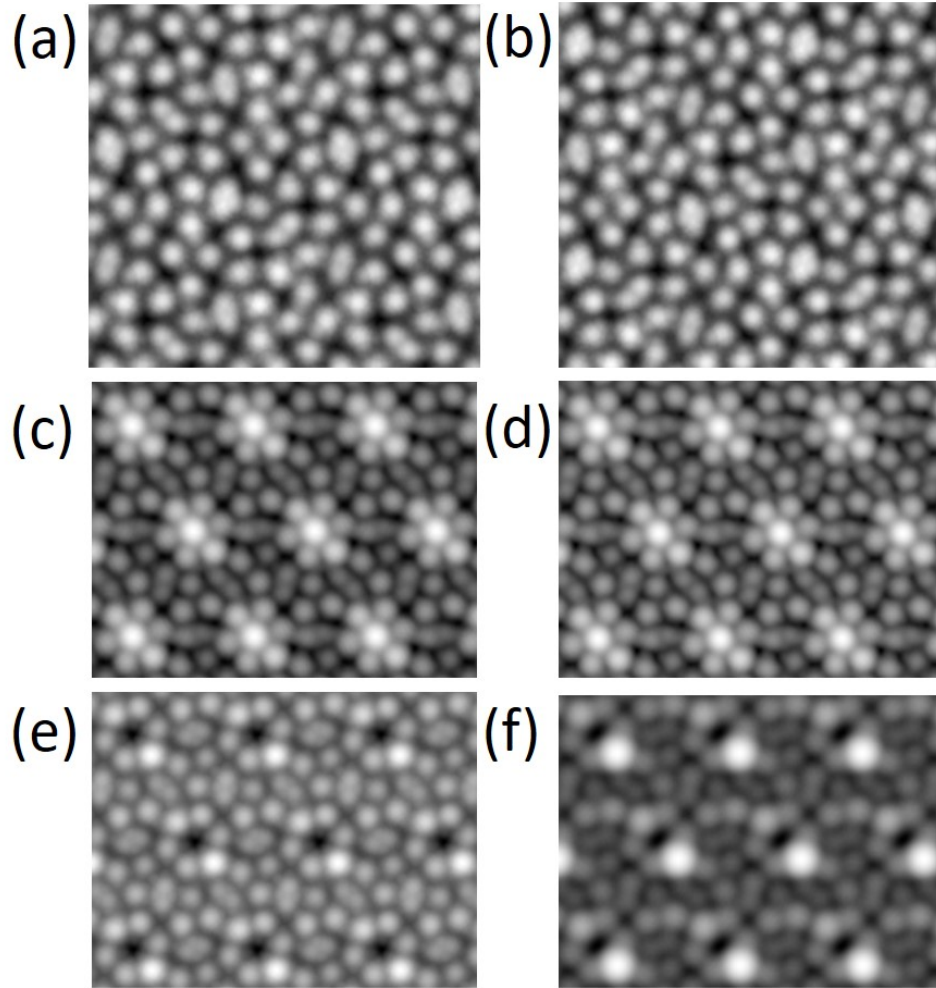
Figure 2: (a,b) Simulated STM images of the square approximant ($V_{bias} = -1$ V (a) or $+1$ V (b), isosurface with charge density equal to 0.1 e nm^{-3}). (c,d) Simulated STM images of the hexagonal approximant with the occupied central protrusion ($V_{bias} = -1$ V (c) or $+1$ V (d), isosurface with charge density equal to 0.2 e nm^{-3}). (e,f) Simulated STM images of the hexagonal approximant with the unoccupied central protrusion ($V_{bias} = -1.5$ V (c) or $+1.5$ V (d), isosurface with charge density equal to 0.1 e nm^{-3}).