Structural and Electronic Properties of Atomically Thin Bismuth on Au(111)

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Highlights

- At coverage less than 1 ML, Bi atoms self-assemble into the cluster array with (5×5) periodicity, $\left(\sqrt{37} \times \sqrt{37}\right)\mathrm{R}25.3°$ in a Kagome lattice and $\left(\mathrm{p} \times \sqrt{3}\right)$ stripes, sequentially.
- The (5×5) periodicity is a low temperature (<100 K) phase and behavior as gas at room temperature.
- The results reveal the Van der Waals interaction between Au (111) and Bi adatoms.
- We have optimized the small window for a stable 2D Bi in Kagome and honeycomb lattice on Au (111).