

# Growth of lead and gold layers on top of new quasi-freestanding phase germanene

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Using low-energy electron diffraction (LEED) and angle-resolved photoemission spectroscopy (ARPES) techniques, we studied germanene on Ag(111) and divided our results into three parts:

1. At higher annealing temperatures, two new quasi-freestanding phases (QP) germanene, referred to as new QP1 and new QP2, were grown and compared with the QP R30° previously discovered.
2. Growth of two different monolayer Pb layers on the two new QP phases.
3. Au atoms infiltrate the Pb layer to form a special Au layer on new QP1 with the same lattice constant, 3.5Å, of the Pb layer, rather than the pristine one, 2.89Å.

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