

Equilibrium crystal shape of Au nano particles formed on Al₂O₃(0006)

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The formation of metallic nano crystals from thin films on substrates depends sensitively on the metal-substrate interface. The size and shape of the Au nanocrystals formed by annealing Au films on oxide substrates are different from those formed on semiconductor or nitride substrates. In this experiment, we deposited thin Au films on Al₂O₃(0006) using E-beam evaporator, and annealed them at various temperatures under various conditions. We measured behavior of the Au during annealing using in-situ x-ray diffraction and reflectivity. The shape of the resultant Au nano particles and their coarsening process are investigated using SEM and AFM.