AFM investigations of Au55 clusters on various substrates

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We have investigated the adsorption of ligand-stabilized Au55 clusters on highly oriented pyrolitic graphite (HOPG) and H-terminated Si(111) surfaces by atomic force microscopy (AFM). The cluster powder, which was produced by a wet chemical process, was solved in dichlormethane and subsequently brought onto the substrates. The concentration of the solution was varied between saturation and a dilution to approx. 10 % of a saturated solution. The patterns produced by the adsorbed Au55 clusters on the HOPG surfaces show a very inhomogeneous morphology, whereas the adsorption of Au55 clusters onto H-terminated Si(111) surfaces leads to a very homogeneous morphology.