E1-06 Scanning tunnelling microscopy study of the oxidation of Mg(0001)

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Previous work indicates that initially incorporated oxygen is the first to form, followed by an island-like ionic oxide growth.

This study probes the morphology of the surface during different stages of oxide growth using Scanning Tunnelling Microscopy (STM). Low Energy Electron Diffraction (LEED) is used to characterize the surface and to compare with past work.

A single crystal Mg(0001) polished to a mirror finish was installed in a vacuum chamber with a base pressure of 5×10^{-11} torr. It was atomically cleaned using cycles of Ar^+ ion sputtering at 500 eV and annealing at 125^0C before the oxidation process.