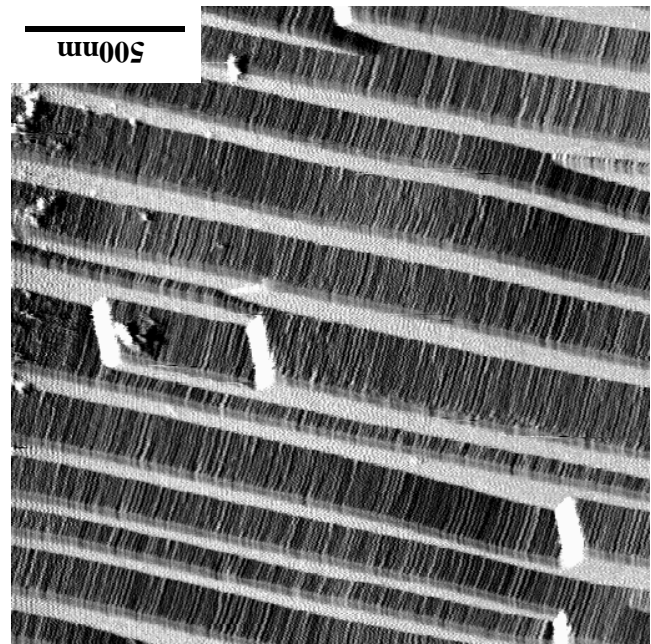
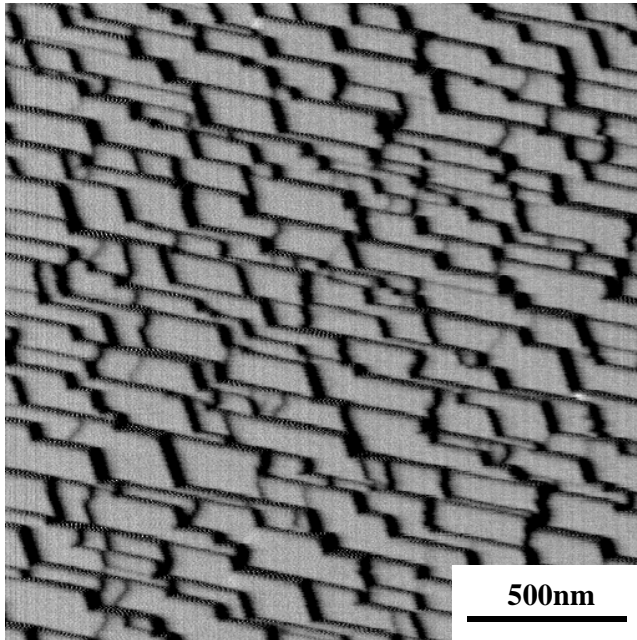


Nanofacet Formation on SrTiO₃ Microfacets



Atomic Force Microscopy (AFM) was used to determine how multiple annealing treatments influence the surface structure of SrTiO₃. The ceramic was mechano-chemically polished flat and annealed in air. The AFM deflection image on the left shows facets on a single grain after an anneal at 1200° C for six hours. The terraces are smooth and approximately 100nm wide. The flat terraces are characteristic of the surfaces of other grains of the same polycrystal. When the six hour anneal at 1200° C is followed by a two hour anneal at 1000° C, new smaller facets appear on previously flat areas. This is illustrated by the AFM deflection image on the right. The new facets are approximately 10nm wide. This phenomenon is caused by the temperature dependence of the surface energy anisotropy or a change in the dominant atomic removal mechanism.

First Place, Ceramographic Competition, 2001

Classification: Scanning Probe Microscopy

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