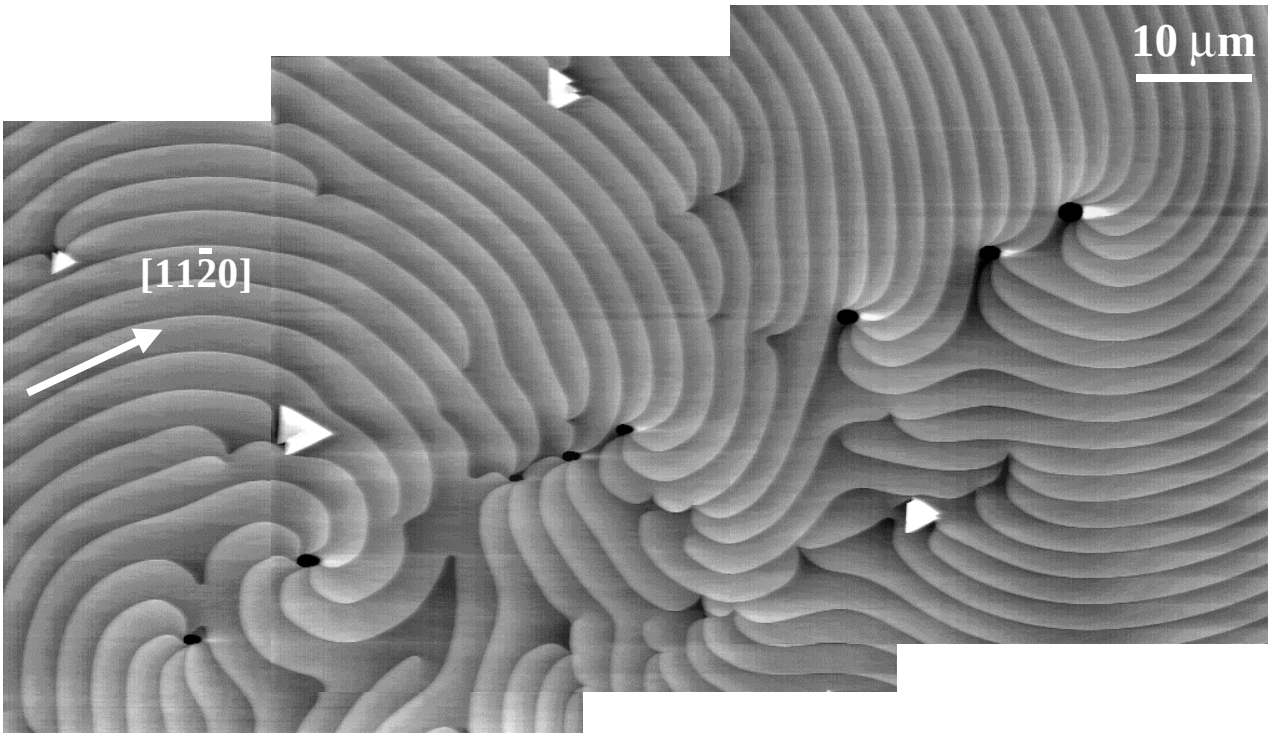
Low Angle Twist Boundary Intersecting a 6H-SiC(0001) Growth Surface



The montage of atomic force microscope images above shows the (0001) growth surface of a 6H-SiC crystal grown by physical vapor transport. The single steps on the surface are each 15.2 Å high, the lattice parameter along [0001]. The montage shows a line of 8 black spots along the [11$\bar{2}$0] direction. Based on Burgers circuits around these spots, these are the points where super screw dislocations with Burgers vectors of Nb_0 (b_0 = 15.2 Å and N, from left to right, equals 5, 6, 4, 5, 5, 6, 6, 7) intersect the surface. The dark contrast occurs where the steps converge because these are empty core dislocations known as micropipes. The accumulation of screw dislocations along this line creates a twist type misorientation of 0.05 ° between the upper and lower parts of the crystal.

First Place, and Best of Show, 1998 ceramographic competition
Classification: Scanning Probe Microscopy

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Supported by DARPA through ONR Grant N00014-96-1-0944