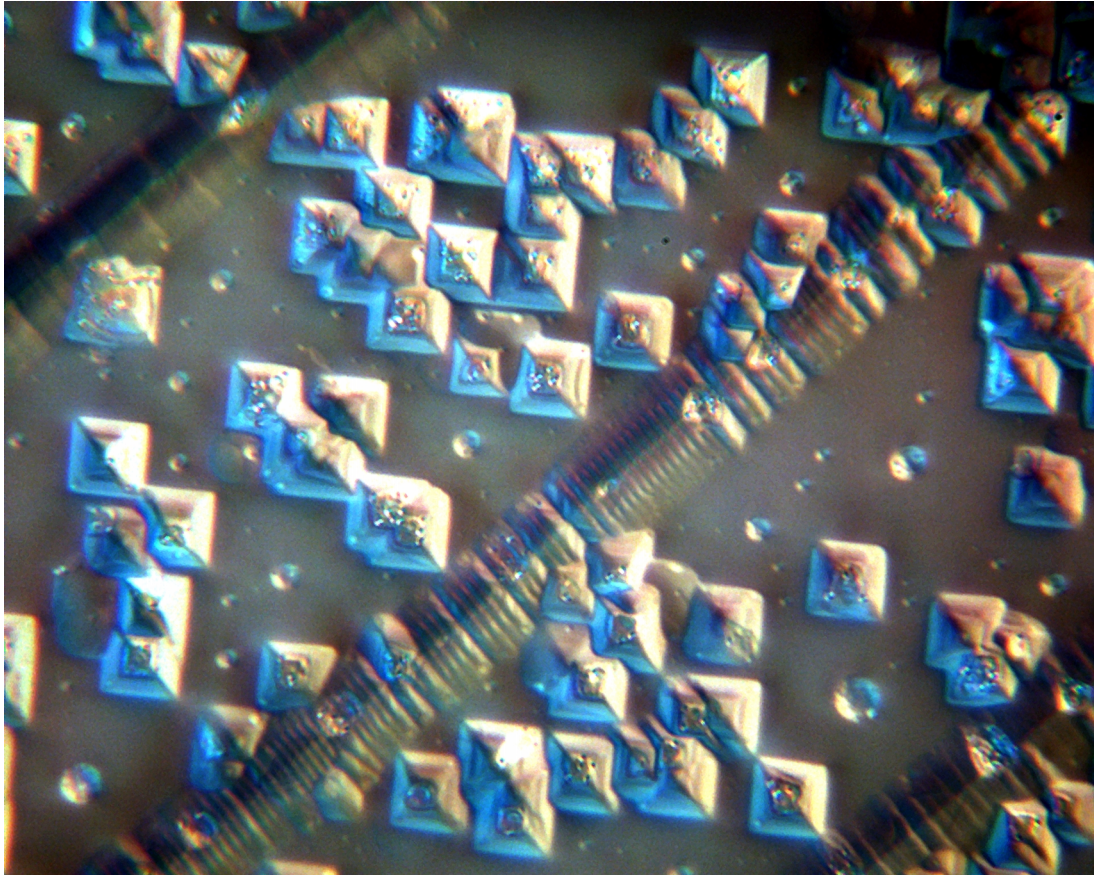


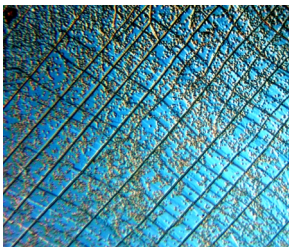
# Polygonized Rock Salt



$\nearrow$   
 $\langle 110 \rangle$

10  $\mu\text{m}$

The interference contrast optical micrograph above shows the etched (100) surface of a rock salt crystal. The image reveals both isolated dislocation etch pits and lines of closely spaced pits that form boundaries. The defect structure was formed by first deforming the sample and then heating it to allow the dislocations to polygonize. The overall cellular structure of polygonized crystal is illustrated in the lower resolution micrograph below. The boundaries are formed by dislocations with a  $1/2\langle 110 \rangle$  Burgers vector that lie on  $\{110\}$  planes and intersect the cleavage surface along the  $\langle 110 \rangle$  directions. Based on the pit spacing, the average tilt misorientation is  $0.02^\circ$



100  $\mu\text{m}$

**Gregory S. Rohrer**  
**Department of Materials Science and Engineering**  
**Carnegie Mellon University**  
**Pittsburgh, PA 15213**

These samples were produced by Brian Close, Justin Samuels, Hilary Stern, and Todd Rogers during an undergraduate laboratory exercise for a class on Defects in Materials. The development of this lab was supported by NSF grant DMR-0072151.

Second place, April 2003

**Classification: Optical Microscopy**