



Crystals and Rainbows Workshop
University of New Mexico
Manufacturing Training and Technology Center (MTTC)
January 22, 2010, 10 am to 3 pm

Workshop Description

This workshop covers several important introductory topics related to MEMS fabrication: Crystallography, Oxidation, Light Interference and Etch. Participants will complete several activities to help them better identify crystal planes of silicon wafers, determine silicon oxide thickness based on its color, and calculate and estimate the growth rates and the etch rates of silicon dioxide. Workshop discussions will include where and how this material and the related activities can be incorporated into an existing curriculum.

Audience: High School and Community College Instructors

Participant Preparation (download educational materials from scme-nm.org):

- Participants need to read the following educational materials prior to the workshop:
 - o Crystallography Primary Knowledge
 - o Oxidation Primary Knowledge
 - o Rainbow Wafer Activity (In the Etch for Microsystems learning module)
- Participants have full access to these and all of SCME's educational materials via scme-nm.org.

Participant Workshop Materials (SCME Provided)

- Crystallography Learning Module
- Etch Learning Module
- All materials necessary to complete all workshop activities

Participants are encouraged to bring cameras.

Discussion Led Format for presentations – Ask questions!

Workshop Schedule - Note: Schedule is subject to change as required by SCME/MTTC.

Saturday, January 22: 10 am to 3 pm

10:00-10:30

- Welcome and Introductions
- Overview of Workshop and Expectations
 - o Pre workshop survey

10:30-12:00

- Crystallography Overview
 - o Miller Indices
- Crystallography Activities
 - o Breaking Wafers
 - o Origami Crystal

12:00 – 13:00 Lunch at MTTC (provided by SCME)

13:00-15:00

- Rainbow Wafer Presentation
- Rainbow Wafer Activity
 - o Oxide thickness determination
 - o Etch rate calculation using Excel
- Dissemination and Wrap-up

