

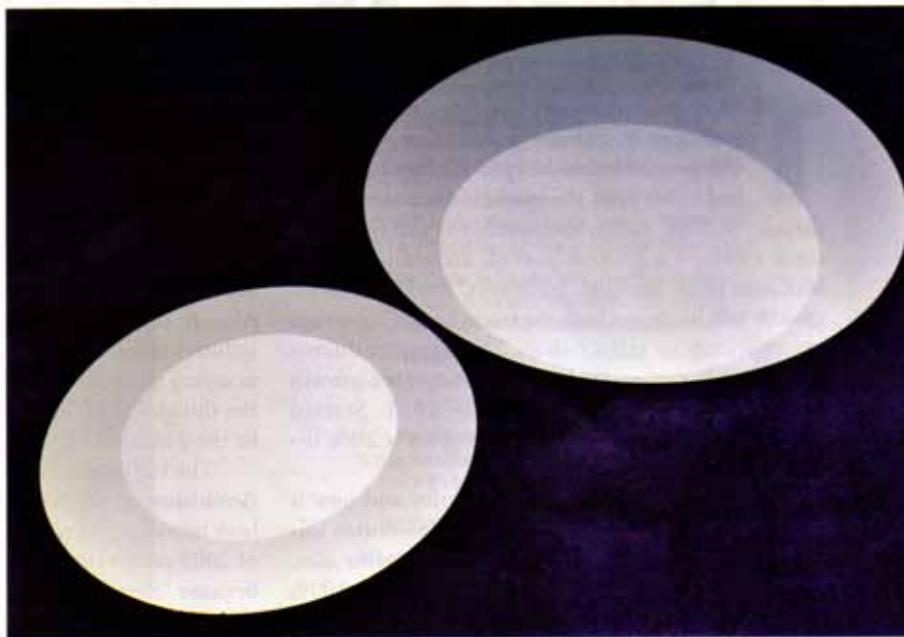
ISMI 450 mm Program Moving to Next Stage

The Sematech 450 mm wafer transition program is moving beyond the wafer-handling effort to development of wafer processing and metrology equipment, according to Tom Jefferson, 450 mm program director at the International Sematech Manufacturing Initiative (ISMI, Austin, Texas).

Using polysilicon test wafers over the past two years, the ISMI Interoperability Test Bed (ITB) in Austin has developed 450 mm load ports and equipment front-end modules (EFEMs), and robotics have been developed and tested over ~5 million cycles. The consortium recently installed a 450 mm wet wafer cleaning tool from Solid State Equipment Corp. (SSEC, Horsham, Pa.) that complements the NanoPhotonics AG (Mainz, Germany) particle-detection and edge-inspection metrology tools installed earlier this year.

At the ISMI Symposium in October in Austin, Jefferson said the 450 mm program now is evolving to development of "the initial toolsets." In parallel with the development work performed at the ITB, the ISMI program has prepared the way for the next phase, meeting with ~30 equipment suppliers at a series of workshops over the past year to create equipment performance metrics (EPMs) for 60 different tool types. The EPMs have been posted to the ISMI website.

In the next phase, ISMI will send out 450 mm single-crystal, mechanical-grade silicon test wafers in newly designed shipping carriers, called HMAs, which are designed to the same size specifications and handling techniques used for the 25-wafer FOUPs. "We will loan test wafers to metrology and



Nikko Metals has both concentric (left) and excentric (right) versions of the hybrid wafer. (Source: Nikko Metals)

equipment vendors," Jefferson said. "The way it might work is for one company to do a blanket film deposition, and then send the test wafer on to a metrology company. To do that, we are developing a better supply of test wafers."

The consortium also will offer hybrid wafers. Nippon Mining and Metals (Tokyo) worked with ISMI to develop hybrid wafers that sinter a single-crystal 300 mm wafer into a 450 mm polycrystalline wafer. The hybrid wafers can be produced for about two-thirds the cost of full single-crystal 450 mm wafers.

Hide Fukuyo, president of Nikko Metals USA (Chandler, Ariz.), said the hybrid wafer comes in two flavors: a concentric version in which the 300 mm sphere is positioned in the center, and an excentric design with the single-crystal wafer positioned toward the edge for edge-to-center data collection.

"The challenge is how to create a stress-free wafer," said Mike Goldstein, an Intel Corp. (Santa Clara, Calif.) materials scientist who works at the ISMI 450 mm program. "When pressure is applied, things can break. Nippon Metals has a lot of experience with sintering for their silicide targets, and so they were able to hot press these without creating defects." ■

David Lammers, News Editor

Read the full story at www.semiconductor.net/450

MOVERS & SHAKERS

Sematech's New President Looks for Increased Collaboration



Daniel Armbrust, Sematech

Daniel Armbrust has been appointed president and CEO of Sematech, succeeding Michael Polcari, who is now that industry organization's chairman of the board. In this month's podcast interview, Armbrust, who was most recently responsible for the operation of IBM's 300 mm fab in East Fishkill, N.Y., discusses his plans for Sematech, R&D funding, and the need for closer cooperation among semiconductor industry organizations. "As an industry, we are underfunded in the effort to keep up the necessary scaling," he said. "We must use our dollars wisely and that means closer and more innovative cooperation." ■

Listen to the interview at www.semiconductor.net/movers