ITC99 Panel 7 Report

Increasing Test Coverage in a VLSI Design Course
International Test Conference, Atlantic City, NJ
Thursday, October 28, 1999

The Thursday afternoon panel on ``Increasing Test Coverage in a VLSI Design Course,'' may have started as a curiosity to most attending, but managed to accomplish concrete results. John Harrington, an industry panelist from Lucent Microelectronics Group, provided a wish list of topics that the industry would like the university graduates to have studied. His list includes: test economics, classical semiconductor defects, simple test pattern coverage, structural DFT techniques (scan, boundary scan, BIST) for system on chip design, ATE (constraints and costs), and selected advanced topics (IDDQ and delay faults). All five professors on the panel agreed with the list but said they could not devote more than 10 to 15 percent of the course time to testing. They also complained about the difficulties of gaining access to ATE. The audience suggested the use of test program emulators, somewhat in a similar way as logic simulators are used for design validation. They pointed out that while hands-on experience with ATE was desirable it requires more time and would further complicate the time shortage problem. Clearly, everyone felt that 10-15% time for testing in a VLSI Design course was far too short to satisfy Harrington's wish list. A practical solution did emerge toward the end of the discussion. Panelist Michel Roberts suggested developing a ``necessary set'' for the course. This set would consist of the ``absolutely essential'' topics from both design and test. The necessary set will only occupy about 60-65% of the course, leaving the rest to be customized by the professor. It was also suggested that TTTC, perhaps with participation from DATC and VLSI-TC, may undertake the task of defining the necessary set. The panel was organized by Vishwani Agrawal and the panelists, other than those already mentioned, were Jacob Abraham, Michael Bushnell, Mani Soma and Wayne Wolf. Last day audience, with several panels running in parallel, was thin. About 40 people attended. Several academics who were present, listened silently, while most questions and comments to the panel came from industry participants.