The Institute of LSI Testing held its 30th annual LSI Testing Symposium (LSITS) in Osaka, Japan, November 10 to 12, 2010. The symposium is focused on progress in measurements to cover the complete cycle from test design, manufacturing process, test, fault diagnosis, failure analysis, and back to process and design improvement. The LSITS brings together engineers and scientists from industry and universities to discuss progress and future trends in semiconductor analysis. With 345 attendees, the symposium offered three days of platform presentations. Session topics included metrology, defect inspection, topography for 3-D devices, novel microscopy techniques, IC-level debug and diagnosis, localization techniques and applications, circuit edit, nanoprobing, no-bias analysis techniques, dopant and distortion analysis, and physical analysis.

The special invited talk, “Current Status and Future Trend of Car Electronics in Toyota,” was given by Kimimori Hamada, General Manager of Electronics Development Division 3 at Toyota. It covered the increasing number of ICs in Toyota’s automobiles as well as the reduction in the size of those ICs. Of particular interest was the diodes used in the Prius work for 100 A.

Papers of special interest to EDFAS members were in the session on no-bias analysis techniques and included “Failure Analysis Method Using a Target Excitation, Quasi-Electrostatic Field Sensing Technique” by S. Ito and K. Takaguchi of the University of Tokyo, and “A Study of Evaluation Technology of Semiconductor Device Characteristics Using Focused Ion Beam” by Prof. Mashiko’s team at Oita University. Two terahertz-related papers covered the usability for FA of terahertz radiation from femtosecond laser injection, which displays a “fingerprint” able to localize a fault when comparing good and bad die. Other FA-related papers included one from Renesas, “Visualizing of High Resistance Defects Using ‘Loop Emission Interaction at the author’s corner during the coffee break that immediately followed the associated presentation session, in this case, Seiko’s paper, “3-D Analysis by Using a Real-Time 3-D Analytical FIB-SEM”

At the informal dinner—Yasunori Goto of Toyota and member of the ILSIT Organizing Committee; Dr. Tetsuya Adachi, former General Manager at Seiko Instruments; Prof. Koji Nakamae of Osaka University’s Department of Information Systems Engineering and Chairman of the ILSIT; Takeshi Ishikawa of Hitachi High-Technologies; and Toshiyuki Majima, General Manager at Renesas and member of the ILSIT Organizing Committee
Hiroshi Kawasaki, dressed in a late-1800s period costume, plays a three-stringed Tsugaru shamisen at the informal dinner.

Microscopy,” which used a pulsed signal; “VLSI Diagnostic Method with the Scanning Laser SQUID Microscope by Utilizing Current Density Distribution Simulation” from Osaka University; and a paper from Kochi University that used micro-Raman spectroscopy to study in situ MEMS-based microcantilevers.

On December 1, 2010, the results of the attendees’ choice for Best Papers of the Symposium were announced:

- **1st place:** “Laser Voltage Imaging for ATPG Scan Chain Diagnosis on 40 nm CMOS” by S. Kasapi, J. Liao, and B. Cory of NVidia and C. Kardach, S. Motegi, I. Kapilevich, D. Skvortsov, and Y.S. Ng of DCG Systems

- **2nd place:** “Visualizing Impurity Diffusion Layer Using Wet Processing and TEM Technique” by N. Yamaguchiya, N. Nakanishi, E. Yoshida, T. Koyama, T. Katayama, Y. Ohno, and J. Komori of Renesas

- **3rd place:** “Atmospheric Scanning Electron Microscope; ClairScope” by M. Suga, Y. Konyuba, and H. Nishiyama of JEOL Ltd.; S. Iwamatsu and Y. Watanabe of Yamagata Research Institute of Technology, Japan; and C. Sato from the National Institute of Advanced Industrial Science and Technology, Japan

The next LSI Testing Symposium will be held November 9 to 11, 2011, in Osaka, Japan. For more information, visit http://www-LSITS.ist.osaka-u.ac.jp.