Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Practical Framework for an Electron Beam Induced Current Technique Based on a Numerical Optimization Approach HIDESHI YAMAGUCHI, TAKESHI SOEDA, Fujitsu Laboratories Ltd. — A practical framework for an electron beam induced current (EBIC) technique has been established for conductive materials based on a numerical optimization approach. Although the conventional EBIC technique is useful for evaluating the distributions of dopants or crystal defects in semiconductor transistors, issues related to the reproducibility and quantitative capability of measurements using this technique persist. For instance, it is difficult to acquire high-quality EBIC images throughout continuous tests due to variation in operator skill or test environment. Recently, due to the evaluation of EBIC equipment performance and the numerical optimization of equipment items, the constant acquisition of high contrast images has become possible, improving the reproducibility as well as yield regardless of operator skill or test environment. The technique proposed herein is even more sensitive and quantitative than scanning probe microscopy, an imaging technique that can possibly damage the sample. The new technique is expected to benefit the electrical evaluation of fragile or soft materials along with LSI materials.

Hideshi Yamaguchi
Fujitsu Laboratories Ltd.

Date submitted: 14 Nov 2014 Electronic form version 1.4