



DEVELOPMENT OF SEMI-QUANTITATIVE ANALYTICAL SYSTEM FOR METAL NANOPARTICLE INK USING LASER-INDUCED BREAKDOWN SPECTROSCOPY

S. Ikezawa, M. Wakamatsu, and T. Ueda

Graduate School of Information, Production and Systems, Waseda University, S209,
Hibikino, Wakamatsu, Kitakyushu, Fukuoka, Japan

Emails: ikezawa@aoni.waseda.jp

Submitted: Feb. 3, 2012

Accepted: Feb. 23, 2012

Published: Mar. 1, 2012

Abstract- This paper describes the semi-quantitative analysis of metal nanoparticle ink using laser-induced breakdown spectroscopy (LIBS). LIBS can be used to obtain information about the density and chemical composition of silver particles or copper particles, even ultrafine particles. Metal particles have been attracting much attention because of their increased use in new micro-nano technologies. In this work, LIBS was used as a fine metal particle measurement system for nanometallic materials used in printing. Good spectral peak resolutions were obtained when the Ag spectra were recorded at wavelengths of 328.068 nm and 338.289 nm and Cu spectra at 324.754 nm and 327.396 nm.

Index terms: LIBS, laser, nanomaterials, in-situ measurement.