

LONG-REACH FLYING FUNCTIONAL INKJET SYSTEM BY EMPLOYING ELECTROSTATIC ACCELERATION

Y. Nishimura, Hirofumi. Han and Y. Koshimoto
Wakayama Univ., 930, Sakaedani, Wakayama 640-8510
Emails: hjs@sys.wakayama-u.ac.jp

Abstract: In this paper, the authors proposed a novel idea of a long-reach flying inkjet system employing electrostatically-accelerated ink drop for the purpose of functional ink micro pattern plotting by contact-free and environment friendly. Proposed working principle was demonstrated through experiment and analysis. At the 5-mm of electrode gap and $\phi 120 \mu\text{m}$ of nozzle, the applicable maximum voltage was 3.5kV realizing 67% up (1.67 times) of droplet flying velocity by one-step of accelerating. By $\phi 10 \mu\text{m}$ of droplet, over 35m/s of flying velocity was promising and by 2~3 steps of accelerating further of speed increment could be expected.

Index terms: long-reach, contact free, functional ink, direct wiring, micro pattern, coating film.