

Inkjet Micro-fabrication & Bioactive Paper

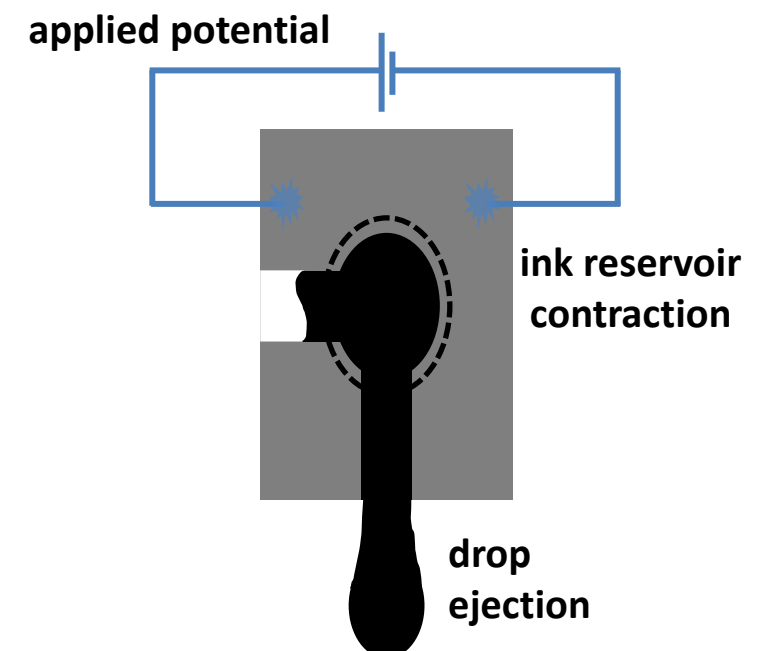
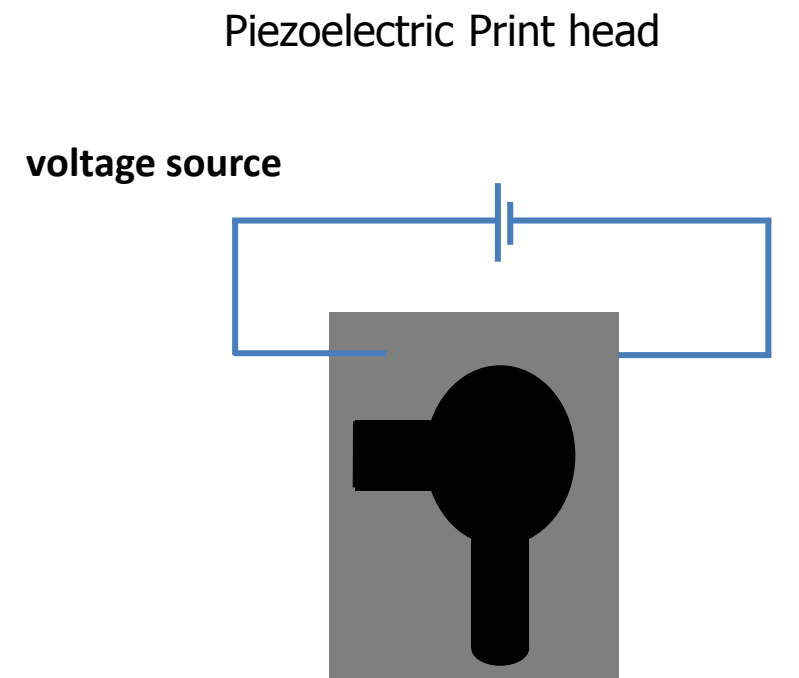
Piezoelectric Inkjet Printing (DOD)

“Drop-on-Demand” (DOD) production of printed matter

- Dispersed inorganic or metal nanoparticles
- Dissolved or dispersed polymers
- Dissolved organics

Applications:

- Printed images/text
- Patterned electrodes
- Printed displays
- Photovoltaics
- Other electronics





Inkjet printed ZnS:Mn nanoparticles onto photo paper under UV light

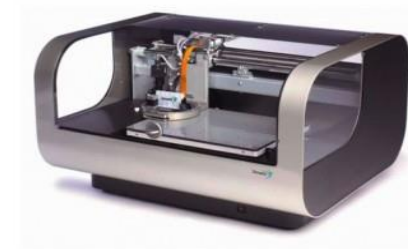
Glass/
ITO

Polymers/
ITO PET

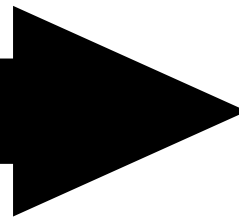
Coated
paper

Uncoated
paper

Dimatix™ Materials Printer



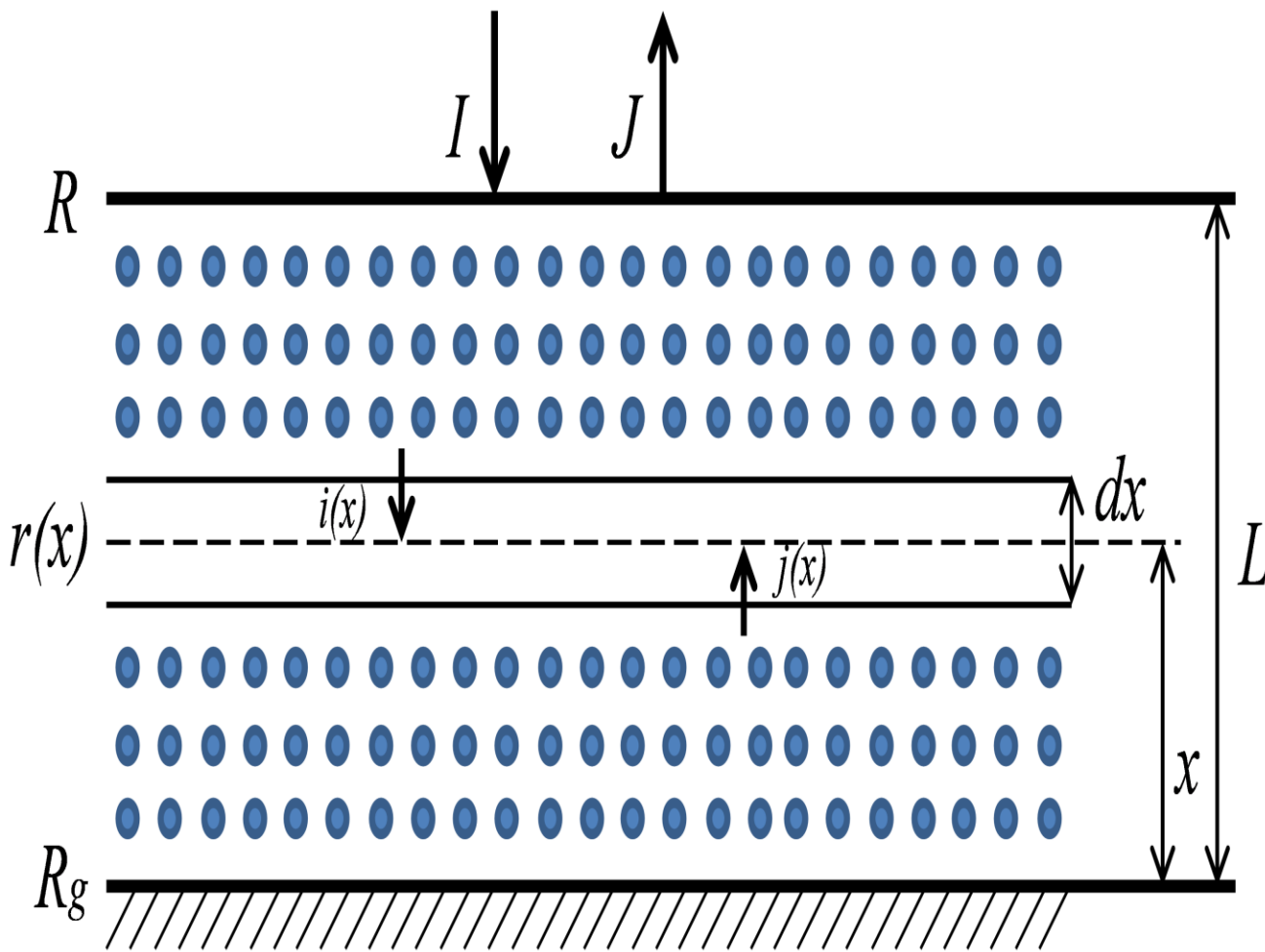
Reduced functional performance



Prediction of Bioagents' Concentration in Bioactive Paper

- Mathematical modeling for relating bioagent concentration to colorimetric measurements of bioactive paper
- Applying the Kubelka-Munk theory of propagating light in a layer of a material

Propagating light in a dyed layer of paper, based on the Kubelka-Munk theory



I – Intensity of incident light
 R – Reflectance from top surface
 L – width of the paper

J – Intensity of reemerging light
 R_g – Backing reflectance
 x – penetration depth

